MARCH 16, 1953

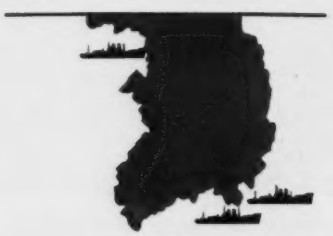
NEWS ISSUE

Electrical World

Price 35 Cents

A McGRAW-HILL PUBLICATION

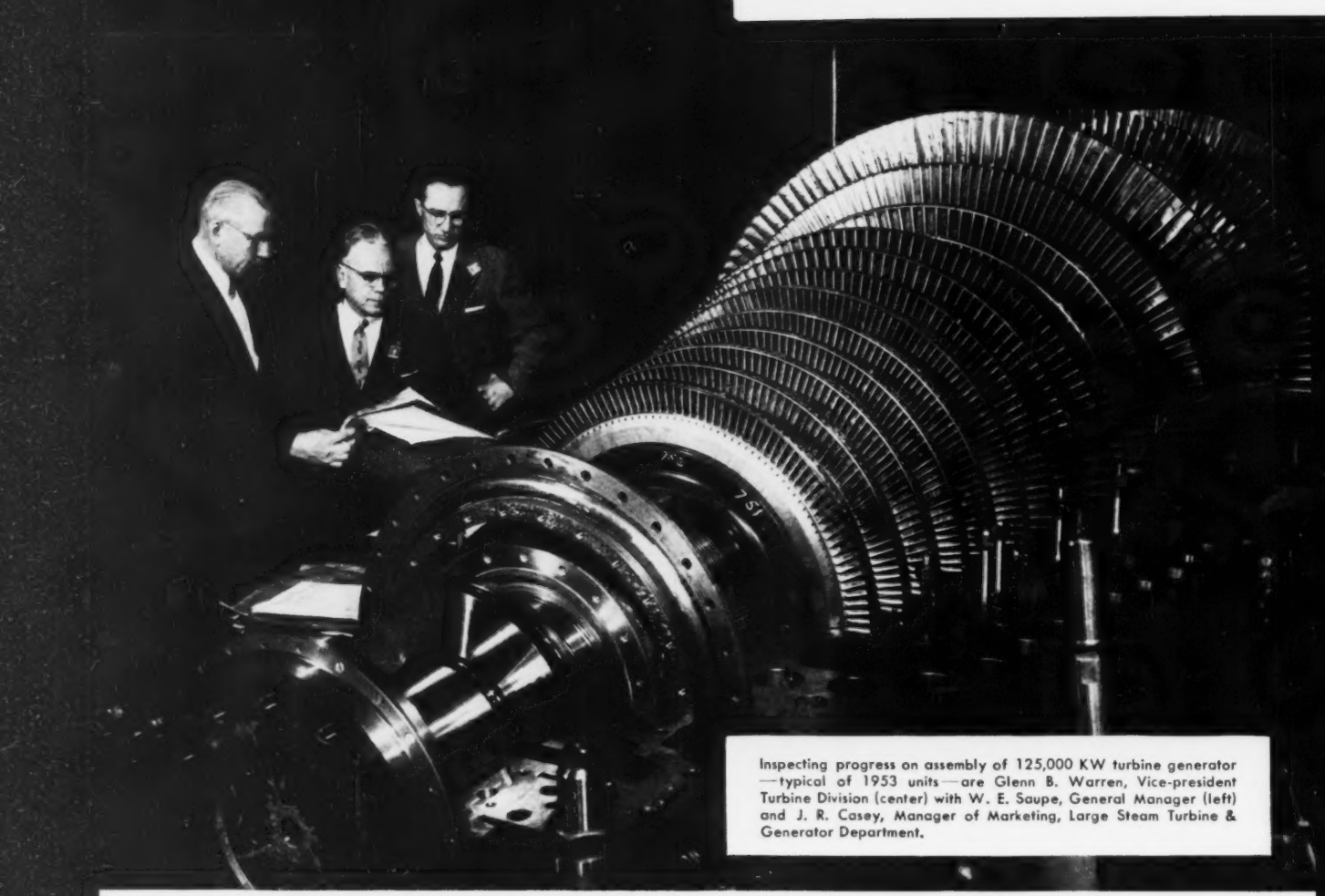
Barges feed power below 38th parallel in KOREA



The Jacona: One of three floating generating plants placed in key spots around the peninsula

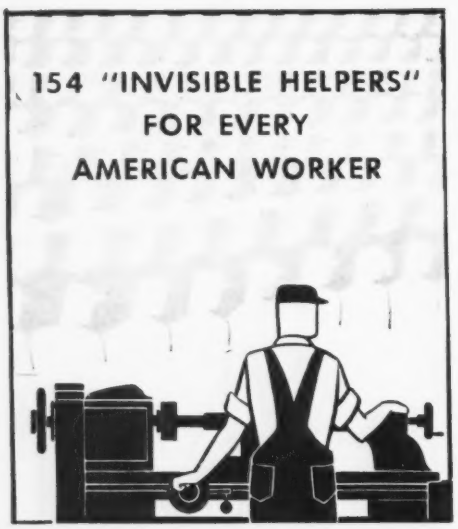
Life Begins for a Generator . . . Page 32

Household Growth Is Slowing Down . . . Page 50



Inspecting progress on assembly of 125,000 KW turbine generator —typical of 1953 units—are Glenn B. Warren, Vice-president Turbine Division (center) with W. E. Saupe, General Manager (left) and J. R. Casey, Manager of Marketing, Large Steam Turbine & Generator Department.

G-E turbine output for 1953 to equal muscle power of 136 million "invisible workers"



"Invisible battalions" of electric workers are one of the secrets of American productivity. Due to increasing use of electric power, every American worker has now the equivalent of 154 "electrical helpers" compared with about 94 in 1940. And the battalions are still growing!

Record 6,200,000 KW scheduled as utility expansion continues in high gear

Anticipated G-E turbine production of 6,200,000 KW for 1953 will exceed the record established last year by nearly 10 percent.

Continually increasing demands for electric power are reflected in the fact that the average unit size of turbine generators on order is 91,400 KW—nearly double the average of five years ago. More than 50 percent of the steam turbines to be shipped in 1953 will be of the reheat type—strong evidence of a growing trend to higher efficiency spurred by rising fuel costs.

One of the dramatic illustrations of the productive power of electric energy is the fact that one kilowatt, continually applied twenty-four hours a day, is equivalent to the muscle work of twenty-two strong men. On this basis, the projected G-E turbine output for 1953 will add 136,000,000 "invisible electric workers" to swell the nation's productive power.

General Electric Co., Schenectady 5, N. Y. 301-229

1878 75 1953 YEARS OF ELECTRICAL PROGRESS

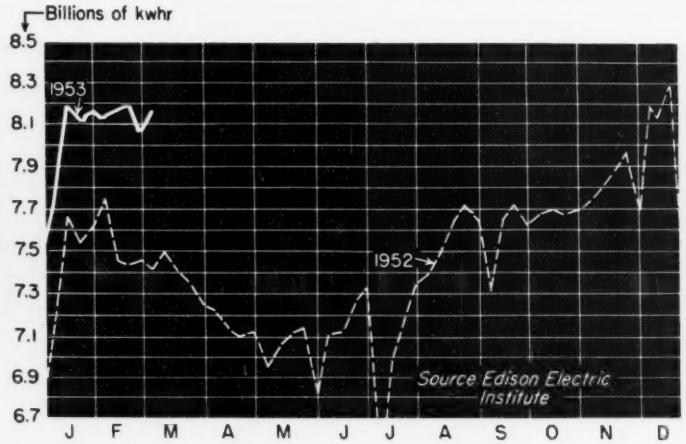
MORE POWER TO AMERICA

GENERAL ELECTRIC

VOLUME 139, NO. 11

March 16, 1953

Electrical World



Output Week Ended March 7—8,172,952,000 Kwhr

Per Cent Change From Previous Year

	Total US	New Eng.	Mid. Atlan.	Cent. Ind.	West Cent.	South-east	South Cent.	Rocky Mount.	Pacific NW	Pacific SW
March 7	+9.0	+9.4	+6.6	+10.9	+7.8	+10.9	+2.4	+10.6	+8.3	+10.7
Feb. 28	+8.8	+5.4	+5.0	+10.8	+10.5	+11.6	+2.1	+10.2	+7.1	+12.3
Feb. 21	+9.9	+13.2	+7.3	+10.9	+10.3	+13.2	+3.7	+9.6	+5.4	+11.7

Electric Power Statistics

		Latest Month	Preceding Month	Year Ago
Peak Load (Million Kw)	Dec.	75.5	72.8	70.4
Capacity (Million Kw)	Dec.	82.05	80.91	75.54
Production (Billion Kwhr)	Dec.	36.45	33.75	33.14
Hydro		8.22	6.52	9.13
Fuel		28.23	27.23	24.04
Fuel Consumption				
Coal (Million Tons)	Dec.	10.72	9.93	9.64
Oil (Million Barrels)		8.52	7.75	6.29
Gas (Billion Cu Ft)		60.54	69.94	52.43
Sales (Billion Kwhr)	Dec.	31.20	30.08	28.44
Residential		8.91	8.16	7.95
Commercial		5.21	5.01	4.77
Industrial		15.11	14.91	13.74
Other		1.98	2.01	1.97
Net Income Class A & B Companies ($ Million)	Nov.	79.81**	64.86**	69.92
Estimated Dec. '53 Peak (Million Kw)	Dec.	87.0	87.3	88.5
Kwhr per Residential Customer (12 Month Average)	Nov.	2,155	2,143	1,988
Revenue per Kwhr Residential Service (12 Month Average)	Nov.	2.77¢	2.77¢	2.82¢
Canadian Production (Billion Kwhr)	Dec.	5.54	5.22	5.11

Business Statistics

FRB Industrial Production Index†††	Jan.	233*	233**	217
Gross National Product Annual Rate ($ Billion)	3rdQtr.	343.4	342.6	337.1
E. W. 5 Industry Production Index	Jan.	130.0*	129.8**	124.4
ENR Construction Cost Index††	Feb.	123.1	123.1	114.8
BLS Consumer's Price Index	Jan.	190.4	190.7	189.1
NEMA Insulation Materials Sales Index†	Dec.	655	579	466
NEMA Electric Appliance Sales Index†	Dec.	268	251	218
NEMA Household Refrig. Sales Index†	Dec.	147	152	115

* Preliminary ** Revised † 1936=100 †† 1949=100 ††† Unadjusted

THIS WEEK

The Electrical Week 5
In the Industry 10
Technical Notes 10
News About People 28
Sales and Service 38
Industrial Relations 41
Financial 42
Manufacturers and Markets 46
Electrical Business Outlook 50

RALPH H FLYNN, Publisher
FISCHER BLACK, Editor
DANIEL T BRAYMER, Managing Editor
A E KNOWLTON ..... Senior Associate Editor
FRANK R INNES ..... Associate Editor
LEONARD M OLMSTED ..... Associate Editor
ROBERT C BLATT ..... Associate Editor
KENNETH K KOST ..... Associate Editor
HERBERT FRANKEL ..... Associate Editor
EDWARD ALLEN ..... Midwestern Editor
HOWARD KNOWLTON ..... New England Editor
RUE M SHOOP ..... Middle Eastern Editor
FRANCIS KOVALCIK ..... Western Editor
JOSEPH MICHALAK ..... Assistant Editor
DAVID REA ..... Assistant Editor
JOHN F WICKLEIN ..... News Editor
JEANNE BERNHARDT ..... Assistant News Editor
IRIS ST CLAIR ..... Departmental Editor
ARY MOSSIMAN ..... Statistician
DALLAS MALLARD ..... Art Director
ANN L ADAMS ..... Production Editor
G B BRYANT, JR. ..... Mgr. Washington Bureau
JESSE MOCK ..... Washington Correspondent
DEXTER M KEEZER ..... Dir. Economics Dept
ROBERT P ULIN ..... Economics Department
WORLD NEWS BUREAU Joseph K Van Denburg, Jr. Editor; London, Paris, Frankfurt, Tokyo, Bombay, Melbourne, Rio de Janeiro, Buenos Aires, DOMESTIC NEWS SERVICE. Atlanta, Chicago, Cleveland, Detroit, San Francisco, Houston. Correspondents in 43 cities.
ADVERTISING STAFF District Managers E F Coffey, New York; N V Palmer, Boston; F P Coyle, Philadelphia; M S Kearney, Cleveland; E S Chapin, Detroit; W H Meneilley, Chicago; J T Schaefer, St. Louis.

Electrical World • Vol. 139, No. 11, Mar. 16, 1953

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder; **Publication Office, 99-129 N Broadway, Albany 1, N. Y. Executive, Editorial and Advertising Office: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y.** Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publication Division; Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Electrical World—Subscription Service, 99-129 North Broadway, Albany 1, N. Y. or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address.

Subscriptions are accepted only from executive, supervisory, and engineering personnel in electric utilities, manufacturing companies, and related fields. Position and company connection must be indicated on subscription orders.

Single copies 35¢. For the United States and possessions $6 a year, $9 for two years, $12 for three years. Canada, $7 for one year, $11 for two years, $14 for three years. (Canadian money, at par.) Other Western Hemisphere, $15 for one year, $25 for two years, $30 for three years. All other countries, $25 for one year, $40 for two years, $50 for three years. Entered as second-class matter, November 16, 1936, at the Post Office at Albany, N. Y., under the Act of March 3, 1879. Printed in U.S.A. Copyright 1953, by McGraw-Hill Publishing Company, Inc. Permission required to reproduce any of contents.

Why you should use G&W POTHEADS on rubber insulated, shielded, Neoprene jacketed 15 Kv. cables

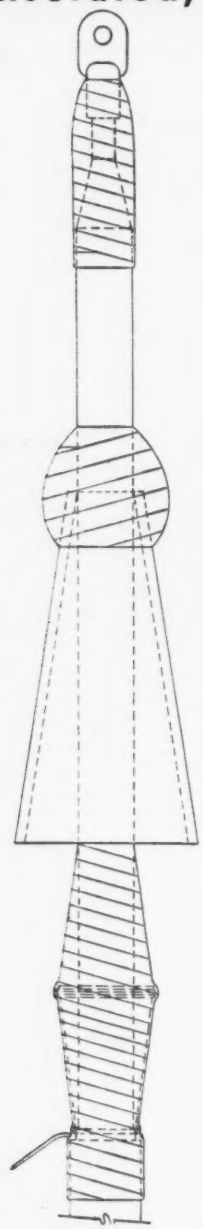


Fig. 1—Cable termination. Exposed insulation subject to deterioration by weather.

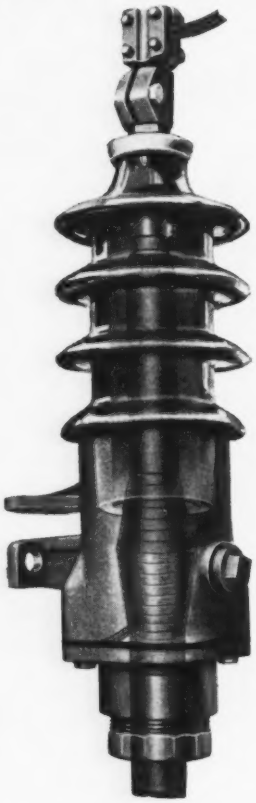


Fig. 2—Pothead No. T17231. Permanent protection for cable ends.

Increasing the creepage length on a cable in air beyond a certain distance increases the flashover very little—because ionization of the air (corona) begins at the grounded shielding terminus at the same potential (for a given cable) regardless of the length.

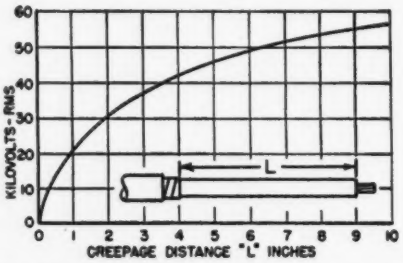
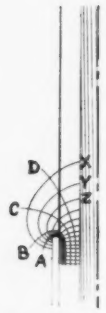


Fig. 3—60 cycle dry flashover values of various lengths of 2/0, 15 Kv., 22/64" rubber insulated cables IN AIR.

Equipotential lines—
A—B—C—D

Flux lines—
X—Y—Z

Fig. 4—Without stress relief cone. High electrical stresses at grounded shielding may cause insulation failure.

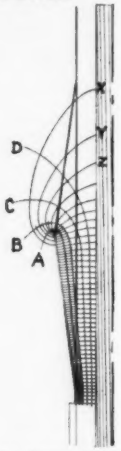


Fig. 5—Stress relief cone decreases radial electrical stresses in the cable' insulation but has little influence on longitudinal stresses.

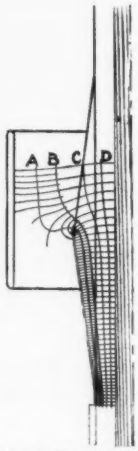


Fig. 6—Further decrease in concentration of flux lines and increase in electrical strength is provided by proper location of grounded pothead body.

A. Exposed insulation surfaces become coated with contaminating dust and in coastal zones salt condensation – which become conducting when wet. As the conducting surface dries unevenly, excessive voltage gradients develop over small areas – arcing can occur and carbonize the organic insulation of a cable termination and result in dielectric breakdown. Inorganic porcelain as used in a pothead is not so affected.

B. The principal benefit of the stress relief cone is in the improved strength of the installation due to an increased resistance to puncture of cable insulation at the grounded shielding terminus where the stress is greatest.

C. Cable surface flashover is increased by the use of insulating compound which has a high dielectric strength compared to air. A pothead provides a container for compound and the compound permits a considerable reduction in the length of the installation.

D. The pothead porcelain provides an outer surface of relatively large diameter compared with the cable, thus reducing the external voltage stresses.

E. High external creepage distance for a given length of porcelain is provided by petticoats which improve the wet flashover characteristics.

F. Potheads (porcelain insulated, compound filled, hermetically sealed) properly protect cable ends against the contaminating effects of weather. G&W potheads meet established A. I. E. E. standards of 60 cycle and impulse voltage withstand values. The extra cost of a pothead (fig. 2) over the cost of materials required for a cable termination (fig. 1) is relatively small – compared with direct and intangible losses resulting from service interruptions due to failures of improperly protected cable ends.

Bulletin AB51 lists potheads with stuffing box seal for Neoprene jacketed cables.

Bulletin A52 gives data on stress relief cones for potheads.

Send for these bulletins.

G & W ELECTRIC SPECIALTY CO., 7780 DANTE AVENUE, CHICAGO 19, ILLINOIS, U. S. A.

THE ELECTRICAL WEEK

The Issue's News Highlights—Bonneville advisory group urges that Bonneville Power Act be amended to permit the agency to issue revenue bonds for the building of new power facilities. The group wants Congress to require the agency to accept full "public utility responsibility."

Republicans who have the responsibility of continuing public projects already under way are running into a wall built by the GOP to keep down expenditures for this purpose.

Bureau of Reclamation opponents charge at a California hearing that the agency set CVP power prices "too low."

Off the Washington Wire—Senate Foreign Relations subcommittee is to begin hearings during the week of March 23 on St. Lawrence Seaway and power project bills, although it now appears certain that FPC will license New York State to build the power project . . . Overall construction time for TVA's 675,000-kw Johnsonville steam plant was three years, nine months, and four days. Last of the six 112,500 generators went into commercial operation on Feb. 22.

Roanoke Rapids case probably wouldn't have happened under the Eisenhower Administration. Interior Secretary Douglas McKay recently told a North Carolina group that he generally favored private development of the Roanoke Rapids site. His predecessor had fought such development all the way to the Supreme Court, where the case is now pending.

FPC probably will postpone for at least a month hearings on the Idaho Power Co application to construct the Oxbow development on the Snake River. Interior Department has asked for the delay in order to have more time to consider its position on the Hells Canyon project. which would directly conflict with Oxbow. Hearing had been set for April 13.

Greenwood County, S. C., Electric Power Commission will probably take over construction of much disputed 41-mile transmission line between Clark Hill Dam and Greenwood. Sepa, Interior Department agency, started the line but work was halted by a court injunction.

Pressure is building up from public and private power interests to retain Douglas Wright as SPA administrator.

Republican lawmakers are not fooling about economy in government. House Appropriations Committee has a staff of some 80 investigators whacking at the old Truman budget. Task forces have been assigned to such federal power agencies as Interior Department and REA. Idea will be to cut scientifically, rather than across-the-board. Here are some of the probable results:

1. All of Sepa's $4-million construction budget will be deleted.
2. There will be a big cut in SPA's proposed $4.6-million construction budget.
3. Sizable cutbacks are in store for Bureau of Reclamation and Bonneville Power Administration. Appropriations hearings for these two agencies are to start March 17 before the House subcommittee.

Radio control of 180,000 street lights in New York City is being planned. A miniature receiver at each luminaire will monitor WNYC for signals to turn lights on or off.

Labor—Naragansett Electric employees, members of Brotherhood of Utility Workers of New England, an independent union, vote by a substantial majority to accept a 6% wage increase . . . Wisconsin Electric Power's employees, members of Local 494 of IBEW-AFL, and Local 2 of independent United Association of Office, Sales and Technical Employees union, accept 5% wage boost, but WEP employees, members of Local 317 of Operating Engineers union, AFL, reject the offer.

More than 3,700 employees of Southern California Edison struck at 6 a.m. on March 10 by order of IBEW, AFL, Local 47. Two hours later California Electric Power Co, Riverside, was struck.

Legislation—Washington State House of Representatives passes a bill which allows cities and towns of fewer than 100,000 population in areas where there is no operating Power Utility District to condemn power facilities within their corporate limits.

A bureau of investigation within the Pennsylvania PUC to conduct field investigations at the premises of public utilities in rate cases would be authorized under the provisions of Senate Bill 220 which has been introduced in Pennsylvania legislature . . . Senate Bill 224 and House Bill 524 are introduced in Pennsylvania legislature defining the fair value of the property of a public utility as the original cost less accrued depreciation . . . House Bill 499 is introduced in Pennsylvania General Assembly covering a sales and service tax of 2% on 98% of gross business in Pennsylvania.

Rates—West Virginia Supreme Court will review Appalachian Electric Power's case for a $3.8 million a year rate increase. It will be heard on April 14. Company is making the appeal from a final order of PSC denying the hike in late January.

Congratulations—Bristol Co, Waterbury, Conn., elects Harry E. Beane vice president of sales . . . Virginia State Corporation Commission celebrated its 50th annniversary on March 2.

Lon C. Hill, Central P&L president, was honored as "The man who has contributed the most to the development of all South Texas during the past 15 years" at Washington's Birthday Celebration in Laredo, Tex., on Feb. 22 . . . John W. Carpenter, Texas P&L chairman. is presented the Longview Journal Award for "outstanding contribution" to the industrialization of East Texas.

J. Arthur Dube, Salem, Mass., Electric Lighting Co line foreman, gets an award for "valor, split-second thinking and courageous action" from Liberty Mutual Insurance Co, for rescuing three children from a burning building.

(*Continued on page* 10)

Council Asks New Function for BPA

- **Bonneville advisors urge that the power administration to take on full responsibility of a public utility**

- **As part of the plan, they suggest 1937 act be amended to permit agency to issue revenue bonds**

- **Paramount problem, says advisory report, is to build steam and hydro facilities to meet 8 million-kw peak in 1960**

Amendment of the Bonneville Power Act of 1937 to permit the agency to issue revenue bonds for building new power facilities was urged last week by BPA's research subcommittee.

The group also proposed that Congress lay down for Bonneville a clear-cut requirement to accept "public utility responsibility" in the Pacific Northwest. A letter from Interior Secretary Douglas McKay submitted with the committee's report indicated he tentatively approved such broadening of BPA interest. Changes in the act under the subcommittee's plan would grant BPA authority to issue revenue bonds for building new hydroelectric generator plants, legal means of signing long-term contracts to buy energy from regional utility systems and approval for building steam generating facilities.

Completion of 11 federal and 3 non-federal dams now under construction will add 2 million kw of prime power to the northwest pool within the next five years and will satisfy minimum requirements into the winter of 1957-58. The committee forecasts serious difficulty in 1960, however, unless authorized and recommended dams are built in order to add 8,116,000 kw for January peaking operation in 1960-61 under minimum hydraulic conditions. The peaking operation for January of this year was 5,597,000 kw.

To get peaking capacity of 13,713,000 kw believed necessary by that time, the committee proposes construction of 440,000 kw steam plant capacity. It also counts on completion of the controversial Idaho-Oregon tie-in at Baker, Ore., to allow western group utilization of federal plant capacity on the Upper Snake River after 1955. It also wants a California tie-in to add 140,000 kw of peaking capacity.

The question of BPA accepting a new status grew out of an Advisory Council meeting in Seattle Dec. 16–17 at which time Dr Paul J. Raver, Bonneville Administrator, had suggested the federal government should get out of the power business in the Pacific Northwest. The new proposals resulting from studies assigned at the Seattle session were made to the southwest area committee, one of four which makes up the regional advisory council.

In suggesting that Congress give BPA a new role, the committee defined the term as a "responsibility to serve all who rightful request service with adequate facilities, at reasonable rates and without discrimination. This applies equally to private utilities, to public agencies or to the Bonneville Power Administration."

Financing Seen Possible

Referring to proposed revenue bond financing, the subcommittee presented a continuation of surveys reported at the Seattle meeting. This was prepared by Dr M. W. Lee, dean of the School of Economics and Business, Washington State College, chairman of the research committee. Dr Lee said inquiry among bankers and investors of both East and West Coast centers indicated the "financial community would welcome an opportunity to bid upon such bonds and feels, furthermore, that there would be no difficulty inherent in the magnitude of such flotations."

It had been indicated earlier that revenues of perhaps $300 million annually might be required to undertake hydro projects to bring regional energy supply up to forecast demands.

In support of a proposal that BPA have authority to purchase energy, the report stated:

"Many local utilities have available good hydro sites but are restrained from developing them because the capacity would be greater than their own needs and yet there appears to no convenient and flexible method of contracting away the surplus in a fashion such that the sales contract would facilitate financing of the project."

Purchase by BPA would solve this, the report said.

The committee urged Congressional authorization to build steam plants, so that BPA could act without waiting for extensive legislative debate if an emergency situation arose, as in 1948–'49 and 1950.

The group said new hydroelectric dams should be started now so the projects can be put on the line before 1959, when load forecasts indicate deficits may be expected.

The Big Question

The committee pointed out there had been several discussions as to whether Congress may wish to retire the government from the power business.

"That question," the report said, "is up to the people of the region. The public was the source of the original demand (which resulted in building of Bonneville and Coulee) and the public has the right to change and ask for a regional agency, for instance. The committee has this subject under separate study but at the moment the outlook is adverse toward the organization of such an agency for some years to come."

Secretary McKay's interest in the "responsibility" plan was reported by Gus Norwood, executive secretary of the Northwest Public Power Association, who submitted a letter from the Secretary.

McKay's letter said:

"I am particularly interested in your suggestion that the Bonneville Power Administration accept public utility responsibility and your recommendations with regard to satisfaction of future power requirements of the private utilities.

"It seems to me that your suggestions contain elements for a long-range program that could remove the

tensions that have retarded power development in the past.

"It is my earnest purpose to use the influence and energies of this department to encourage and assist in unifying all possible agencies to achieve a maximum development of the hydroelectric potential of the northwest."

McKay said it was his purpose:

1. To recognize and sustain the right of the people of the local and state communities to decide whether they prefer distribution of electric power by investor-owned enterprise or by publicly owned agencies, and their right to control at the state level the development and regulation of non-federal power generation and distribution

2. To urge that the people of the region utilize their full resources through private and public effort to achieve for themselves a maximum development to the full limit of their capacity

3. To urge upon Congress federal assitance to the full development of Northwest power resources by further construction of generation and distribution facilities which cannot practically be constructed by local, private or public agencies, but which can be provided by the federal government on a self-liquidating basis and with benefits to the nation in flood control, irrigation and reclamation.

Storm Hearing

Connecticut PUC listens to testimony on operation of utilities in recent emergency

Connecticut Public Utilities Commission, conducting hearings on operations of the state's utilities during an ice storm in January, was told last week that putting all wires underground might more than double rates.

Testifying on behalf of the utilities, Archer E. Knowlton, senior associate editor of Electrical World, said that the cost of putting wires underground was 18 to 25 times higher than the cost of constructing overhead lines. In a residential area, he said, the cost of one mile of underground lines could be about $90,000-100,000 compared with $3,00-5,000 for an overhead line. And, he added, underground lines are no guarantee of uninterrupted service since they are subject to floods and explosions.

Requested by Governor . . . The commission ordered the public hearing at the direction of Gov John D. Lodge to determine the extent of the damage done by a severe ice storm Jan. 9 and 10 (EW, Jan. 19, p 8) and to determine if there are means of minimizing or eliminating service interruptions in the future. The commission's report will be submitted to the governor. The Connecticut State Legislature at present is studying possible legislation compelling utilities to put their lines underground.

Representatives of Connecticut Light & Power Co, United Illuminating Co, Connecticut Power Co, Danbury & Bethel Gas & Electric Co, Derby Gas & Electric Co, Hartford Electric Light Co, two telephone companies, civic groups, tree protective associations, and city officials and state legislators attended the hearing.

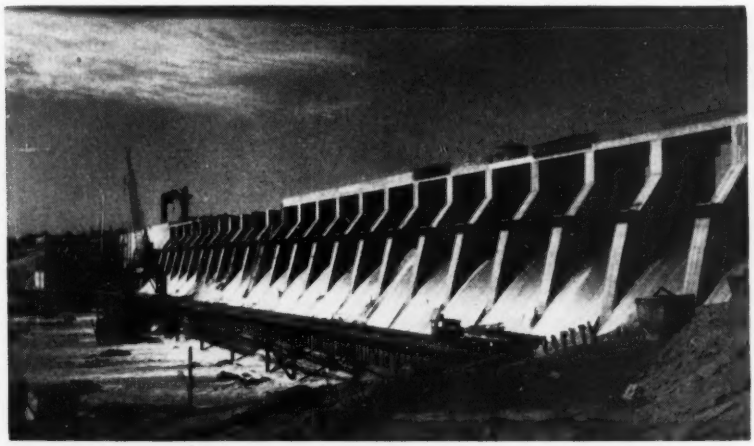
As an alternative to costly underground installations, Knowlton suggested utilities consider wider use of aerial cables, buried cables, semi-underground, and alley locations for wires if feasible on their systems.

In discussing the performance of Connecticut's utilities during the recent storm, Knowlton said that the methods they used to restore service compared favorably with those used by utilities in other parts of the country during emergency situations.

Elmer F. Nuesse, chief engineer for the PUC, submitted reports showing that there were 134,797 interruptions in electric service and that restoration of service varied from several hours to seven days. He said trees were the principal cause of damage to lines and, stated a more extensive tree-pruning program might help.

Testifying for Connecticut Light & Power Co, Russell Hicock, superintendent of transmission and distribution, described his company's operations during the storm. In order to minimize outages in future storms he said Connecticut L&P has initiated studies on sagging of wires, sleet melting procedures for conductors, and wire inspection. He admitted a more extensive tree trimming program might reduce damage but noted it is difficult to obtain consent of property owners for such an activity.

Taking the stand on the second day of the hearings, Russell G. Warner, United Illuminating vice president, discussed problems involved in different types of distribution systems. He confirmed Knowlton's views on high cost of underground lines and pointed out that cost to each customer for a service connection would be several hundred dollars. Warner also noted that it is more difficult to locate faults on underground and aerial cables than on overhead lines and that the lines must be de-energized in order to make repairs.



Finishing a Dam the Depression Delayed

Georgia Power Co is completing final stages on the Plant Sinclair hydroelectric project at Furnam Shoals on the Oconee River, near Milledgeville. Work was first started in 1929 but discontinued during the depression. It was built at a cost of $17 million and will have two 22,500-kw units. The 105-ft dam is about 4,000 feet long, with 1,224 feet of concrete spillway and bulkhead. First unit went on the line in February.

Republicans Hit a GOP Wall

Legal obstruction limiting expenditures for public projects may have to be surmounted if construction is to continue on three big waterway projects in the Pacific Northwest

The Republican Congress is running smack into a brick wall GOP lawmakers helped to erect. Some way will be found to surmount it, but meantime it casts a shadow over orderly construction of at least three big waterway projects in the Pacific Northwest.

This is the situation:

Republican Congressmen have insisted that money authorizations exist for public works projects before funds are actually appropriated. Sometimes this has been done for basin-wide developments, sometimes for individual projects.

Corps Nears Limit . . . Right now the Army Corps of Engineers is approaching the authorized limit of spending for a group of Columbia Basin projects. This limit is now set at $192 million, and about $182 million already has been appropriated. Under a strict interpretation of legislative procedure, this would mean the appropriations for the next fiscal year for this group would have to be limited to a mere $10 million unless the authorization is raised.

At least three large projects in Washington and Oregon are involved, for which the Truman Administration requested some $43.3 million for construction during the next fiscal year. Projects and amounts asked are: Detroit Reservoir, $10.2 million; Lookout Point Reservoir $13.3 million and The Dalles Lock and Dam, $19.5 million. All are multi-purpose projects with relatively large hydroelectric operations.

It would seem a relatively simple matter to push through a bill raising the authorizations for these few projects, but it is not. Such increases are usually handed in omnibus civil works bills only after long deliberation and extensive participation by members of Congress. These are known as "pork barrel" bills, and a large number of Congressmen insist that their favorite projects be considered before an omnibus bill is finally put together.

The Dilemma . . . Now Pacific Northwest lawmakers anticipate that any move on their parts to raise the Columbia Basin authorizations would open the way for a lot of other Congressmen to start hollering. There is just not time during the present session to put together an omnibus bill. Besides, Republicans do not consider it good politics. Thus is appears that Northwest lawmakers will have to use their best statesmanship to solve their delicate problem.

The Columbia Basin projects are the only ones hitting the authorization limit during fiscal 1954, but a lot of others will be in the same fix during the next fiscal year. Congressmen from other areas are watching for an opening.

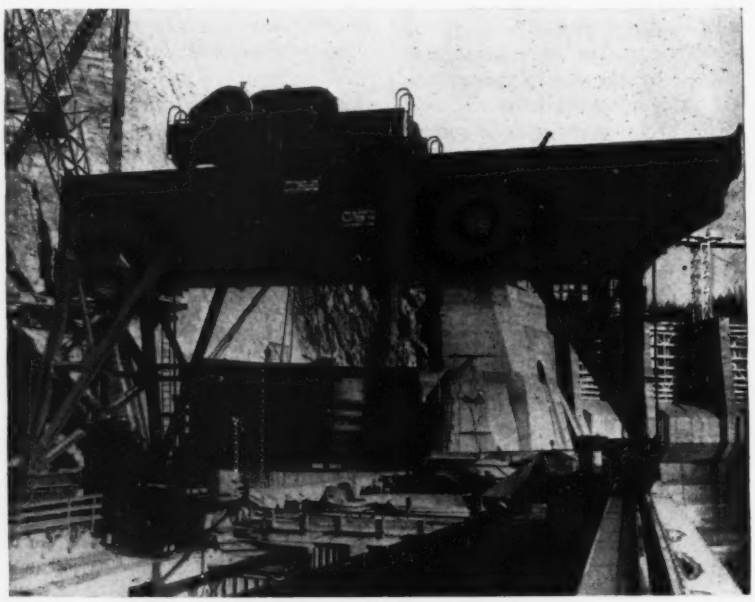
Democrats were not inclined to be as prim in following the authorization-appropriation procedure. For instance, the Bureau of Reclamation under the Democrats let contracts for some $3 million in excess of its authorization on the Eklutna Project in Alaska. Result was that the General Accounting Office, watchdog for Congress, forced Reclamation to cut back these contracts.

Now Reclamation is asking Congress to raise this authorization so that it can continue with the Alaska project.

Canadian Firm to Install Nation's 1st Gas Turbine

Canadian Utilities has announced Canada's first gas turbine generator will go into operation at its Vermilion, Alberta, plant in the summer of next year.

The 7,000-kw unit will double the capacity of the present natural gas-fired steam plant at Vermilion. It was built in Switzerland by Brown-Boveri Ltd. Gas turbine units have been installed in other countries, the largest operating in the United States and Switzerland.



Crane Carries a Heavy Load

This especially designed 275-ton gantry crane is being used at Washington Water Power Co's Cabinet Gorge hydro project in Idaho for general service work over the turbine area. The crane, designed to withstand extreme weather in full-time outdoor service, has safe overload capacity to handle the massive rotors weighing up to 330 tons each.

Three of the four generators at the Cabinet Gorge Station are already in operation. The fourth will go on the line in July. The project will have a total capacity of 200,000 kw.

Kuhlman Electric Strike Ends After Five Months

Representatives of Kuhlman Electric Co and Local 778, CIO, last week signed a new contract bringing to an end a strike which began last Oct. 1.

The two-year contract provides for continuation of cost-of-living escalator provisions using the Consumers Price Index of the Bureau of Labor Statistics with 10¢ of the 20¢ an hour cost-of-living increase granted thus far remaining subject to fluctuation and the balance being made a part of base rates.

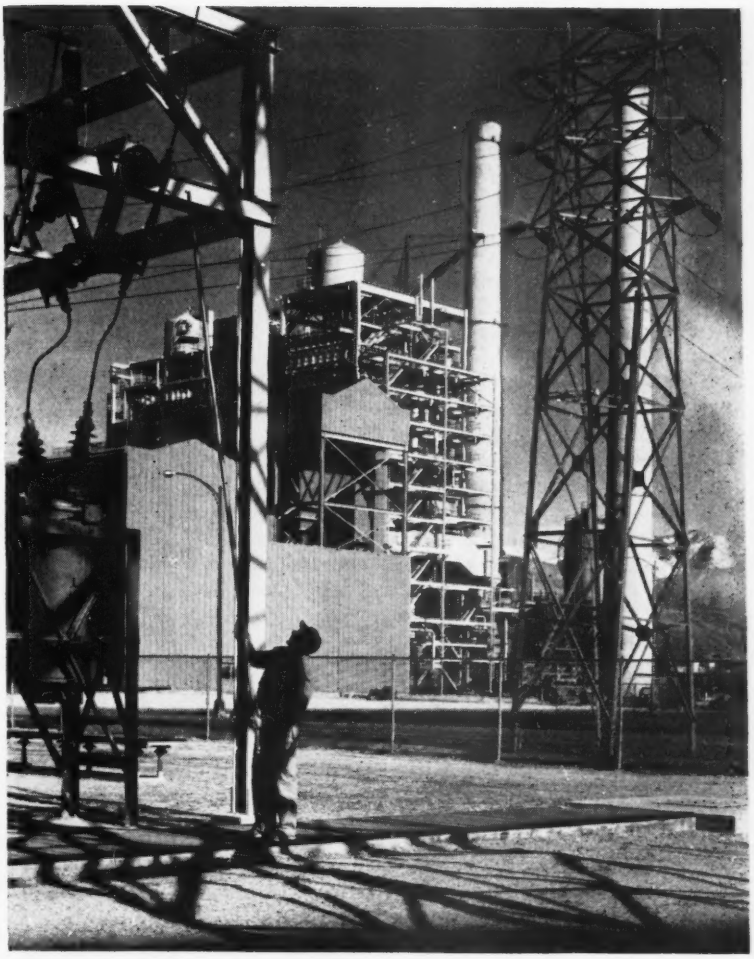
Nine employees discharged last Sept. 22 on charges of participating in and instigating two half-day wildcat strikes prior to the last contract's expiration Oct. 1 were reinstated as of Feb. 27 without prejudice and with full seniority rights.

Terms of the wage settlement provide for a total package of 15¢ an hour, of which 8¢ an hour is to be applied as a general wage increase and the balance used to provide for an enlarged group insurance program, increased vacation with pay, schedules scaled up to three weeks' vacation pay for 15-year employees, and increased nightshift premiums.

Non-economic contract changes provide for improvements in grievance procedure and substitution of automatic progression to top job rates for a former quarterly review system, and several other improvements.

During latter stages of negotiations George Bowles, chairman of the Michigan State Mediation Board, personally intervened and assisted the parties in reaching an agreement.

Approximately 25% of negotiations ployees reported back to work Monday morning and full scale production was slated to resume shortly thereafter.



Throwing Switch at Gadsby Plant

Lineman closes disconnect switch in the switchyard of Utah Power & Light Co's Gadsby Plant as the plant's second unit goes on the line. The unit is rated at 75,000 kw and is the largest single turbogenerator in the Rocky Mountain area. Unit No. 1 at Gadsby has a capacity of 66,000 kw and went into service a year ago. Unit No. 2 may burn coal, gas, or oil, while the first unit burns residual fuel oil.

Export of Hydro Power from Yugoslavia Studied

BELGRADE (McGraw-Hill World News)—The rivers of Yugoslavia are being considered for a leading role in the development of electric energy resources for Europe. European demands for electric power are rapidly outstripping the supply, and the Organization for European Economic Cooperation, has called for an increase of 100 billion kwhr in the European output within the next five years.

Studies made by the United Nations Economic Commission for Europe, based in Geneva, estimate the hydroelectric capacity of Yugoslav rivers at 50 billion kwhr per year, of which less than 5% is at present being exploited.

Teams of experts from Yugoslavia, Western Germany, Italy and Austria were set up in February by the Economic Commission for Europe to see how the water from the highlands of Yugoslavia could be turned into power for neighboring countries. (EW, March 9, p 89). France and Switzerland are following their work as observers.

Among the possibilities the experts will consider is the creation of a "High Authority" for the countries interested in securing power from Yugoslavia, rather similar in conception to the Schumann Plan for combining iron, coal and steel production in the Ruhr and Lorraine.

As an exporter of electric power, Yugoslavia is in a favorable position because of her ability to deliver large and regular supplies of electricity during the winter months. This asset has special value, because much of the power developed in Italy, Austria and Western Germany comes from Alpine streams, which are blocked in winter by ice and snow. Yugoslavia can bridge this seasonal gap.

THE ELECTRICAL WEEK

CONTINUED

More from Washington—Output during the 12-month period ended Jan. 31 topped the 400 billion kwhr mark—highest ever recorded by U. S. electric utilities. Highest monthly output was for January 1953 when 36.7 billion kwhrs were recorded . . . Coal and some oil interests are supporting legislation which would slap an import quota on residual fuel oil, the kind used for power generation. Bills before Congress would limit imports to 5% of domestic demand.

Joint Congressional Committee on Atomic Energy, still deadlocked on selection of its chairman, is going ahead with studies of atomic power prospects. Acting Chairman Carl T. Durham, Democratic Congressman from North Carolina, took unusual steps to continue the power studies started by the committee last year. He appointed a subcommittee on reactor development, headed by Rep Carl Hinshaw, California Republican . . . "There are signs that industry may begin to invest substantially in the power reactor field in next few years," AEC Commissioner Henry D. Smyth said last week.

Niagara Mohawk Power begins construction on 20,250-kw hydro station at Five Falls on Raquette River in northern New York . . . Montana-Dakota Utilities will build a gas turbine plant at Williston, N. D., containing two units totaling 8,000 kw, and a 25,000-kw steam plant at Mandan. Williston plant will burn natural gas.

Oklahoma G&E will offer 241,000 common shares first to stockholders on 1-for-10 basis in April . . . Fitchburg G&EL will offer 23,698 common shares to stockholders on 1-for-5 basis, no underwriting . . . Thomasville, Ga., citizens vote 1,673 to 67 to issue $2,250,000 in revenue certificates to finance improvements to city light and water systems . . . Illinois Power plans to ask Illinois Commerce Commission for higher rates throughout its area within the next few months.

IN THE INDUSTRY

West Penn Power Co has been ordered by the Pennsylvania Public Utility Commission to cut its rates $1,663,840 a year in order to reduce its rate of return to 5.65%. What is surprising about this order is that from earlier action in the case it appeared that there would be no cut in the rates upon which they have collected since October 1951. It was also expected that the return on a fair value on the the company's property would be about 6% or more.

This rate case has been dragging along for over two years. On Feb. 28, 1951, the company filed with the commission a rate schedule providing for an estimated net increase in operating revenues of $4.5 million. On April 24 the commission suspended the operation of the proposed tariff for six months or to Oct. 29.

Increase Was OK Then . . . Three days before this last named date the commission issued this statement in its News Release No. 542:

"The PUC, by a 3-1 vote, did not continue the suspension for an additional three months because the majority concluded, on basis of the exhaustive half-year inquiry, that West Penn had clearly justified the increased rates."

The release ended with this sentence: "A formal order will be issued by the commission later."

West Penn then put the rates into effect and sat back awaiting the order. Seventeen months later West Penn got its first news of the order from the newspapers. The order decreased the rates the company had been collecting and called for a refund to customers of the difference between the amount collected during the period and the amount due under the new schedule.

To What Return Is West Penn Entitled . . . Until 1951 the company had never increased its rates. Return on fair value (of $210 million as computed by the commission) had fallen to 5.2%. The rates just nullified provided 5.9% on the same base. This is nearly in line with the rate of 6% or over the PUC has been allowing. But the order will cut return to 5.65%. This certainly is not going to make it easier for West Penn to raise money for construction. Any rise in labor or fuel costs may put the company into the same position that it had been in before the increase.

Naturally West Penn management is not very happy. Pres Philip Powers has petitioned for a rehearing. He has also asked that in the meantime no change be made in the company's rates.

TECHNICAL NOTES

ARCHER E. KNOWLTON

Capacitive currents can be interrupted successfully by shunting, with a proper resistance, the main contacts during a portion of the opening and closing strokes.

A large eastern utility, pleased with its economies in using **glass pin-type insulators** for distribution primaries, is preparing to use glass spools for secondary racks. The spools, they find are able to meet strength and electrical specifications.

Silver plating processes for aluminum have been perfected to the point where the plating equals that achieved on copper.

Aluminum tube wall thickness for maximum conductor space efficiency should be about 11/16 inch. Exceeding this value will give no increase in current-carrying ability despite the increase in weight.

Spreader stoker maintenance has been reported as low as one cent per ton of coal burned.

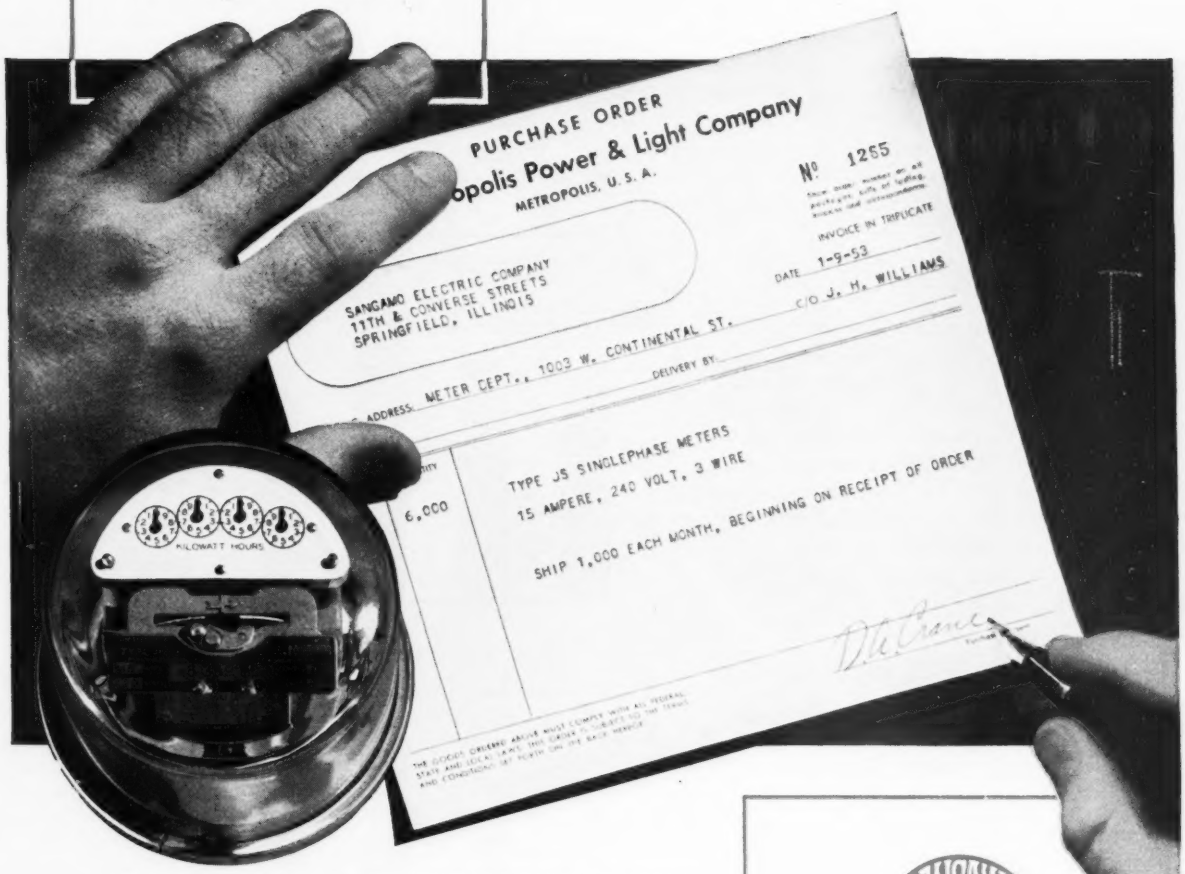
Network systems in 1949 had 22,047 transformers with total capacity of 6,267,985 kva. Peak load on these units was 3,422,000 kva.

Silos, some claim, are less expensive for coal storage than bunkers.

Black lines on white background for instrument scales allow opportunity for the white area to cause glare fatigue. White on black background averts the difficulty in bright light and is reported to be more legible in dim light.

a full measure of confidence

Sangamo J Meters

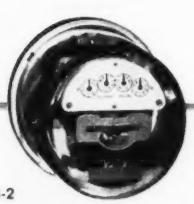


You can install Sangamo Type J Watthour Meters with complete confidence that your customers will neither be overcharged or undercharged. In the thirteen year performance record of J Meters, test records from utilities prove a remarkable degree of unchanged accuracy.

You can use J Meters in highly corrosive atmospheres for years with full confidence that both external and internal meter parts will resist the effects of corrosion. Sangamo's development of special anti-corrosion treatment and selection of materials prevents meter deterioration on outdoor installations, even under the most severe conditions.

You can buy Sangamo meters with absolute confidence that your choice will be approved by those who *know* meters—the men of your meter department.

SANGAMO
ELECTRIC COMPANY
SPRINGFIELD, ILLINOIS



Only Measured Facts are Known Facts

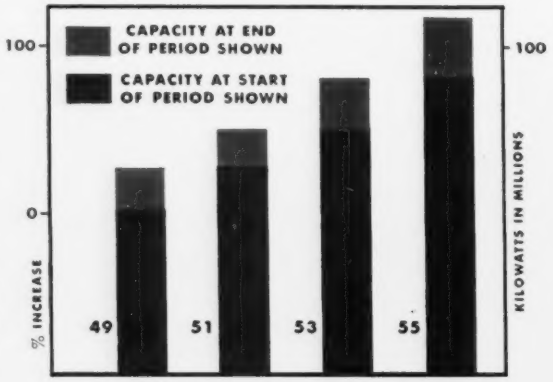
JM 53-2

KEEPING PACE . . .

Today, electrical power production must constantly be expanded to keep pace with industrial and consumer demands. Utility forecasts of future needs are far in excess of today's capacity. Moloney is, and has been, expanding its facilities to keep pace with utility and industrial requirements . . . in short, keeping pace with the power picture. Today, Moloney's capacity is 130% greater than in 1949. Plant expansions, now nearly completed, permit construction of power transformers in the 150,000 Kva, 230 Kv class. So, today or tomorrow, as you did yesterday . . . *specify Moloney,* for better performance, greater reliability, less maintenance!

WHAT THE INDUSTRY NEEDS

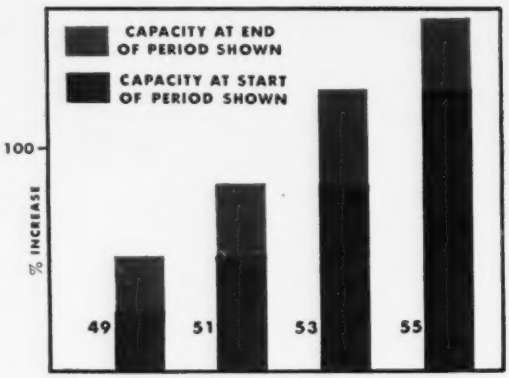
Forecasts by American Utilities of Kilowatt capacity through 1955 are shown in diagram at right. Shown also in blue are the utility needs which were accomplished each year since 1949 as well as the Kilowatt capacity that will be required through the year 1955.

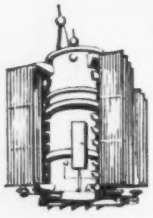


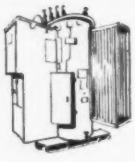
WHAT MOLONEY IS PROVIDING

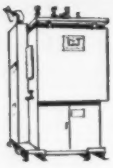
Since 1949 Moloney's expansion of its facilities has increased its capacity 130%. Overall industry demands plus a growing preference for Moloney products necessitate still further expansions which are now under way and will be completed this year.

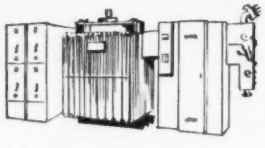
ME53-4











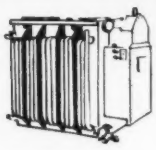
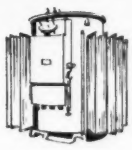
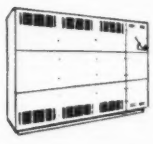
M O L O N E Y E L E C T R I C

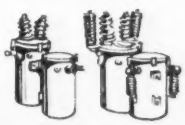
Manufacturers of Power Transformers • Distribution Transformers • Load Ratio Control

SALES OFFICES IN ALL PRINCIPAL CITIES • FACTORIES AT ST. LOUIS

• WITH THE POWER PICTURE

Shown in outline above, new construction now under way at the Moloney Plant, which includes a crane bay 70 feet high, 80 feet wide and 530 feet long to be equipped with two 100 ton cranes and other equipment necessary for building transformers in the 150,000 Kva, 230 Kv class.



C O M P A N Y

Transformers • Step Voltage Regulators • Unit Substations

MO. AND TORONTO. ONT.. CANADA

MOLONEY ELECTRIC = { BETTER PERFORMANCE / GREATER RELIABILITY / LESS MAINTENANCE

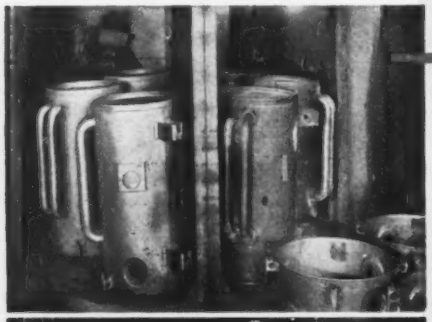
"When I paint the POLE STAR it stays painted"

says John Fedorkovic
Pole Star Painter

Whatever can be said about transformer paints, this is certain — the life of any good paint depends upon two things:

1. **the condition of the surface to which the paint is applied;**
2. **the thickness of the paint coating.**

By using a superior paint and by giving special attention to these two important considerations, Pennsylvania gives each Pole Star tank the maximum amount of protection for the longest possible time.



GRIT-BLASTING

Although generally more expensive than other methods of surface preparation, blasting with steel grit insures that the tank surface will be absolutely clean and free of grease and dirt; and that the surface will be roughened to provide "toothage" to increase the adhesion of the first coat to the steel surface.

FLOW-PAINTING

A flowed film of paint is heavier and more uniform over a large surface than a spray film and has the added advantage of reaching inaccessible places. The primer coat is first flow-coated on the tank. After it is thoroughly baked dry, a coat of blue-gray transformer paint is flowed on, and it too is oven-dried.

SPRAYING

A spray-applied film of paint has a better appearance than a flow-applied film. Thus, the third coat of paint, a blue-gray finish coat, is sprayed on to add to the film thickness and to insure a smooth finish with a maximum amount of gloss.

Pole Star Transformers are available in sizes 3 Kva through 500 Kva, 2400 through 43,800 Volts. Protected Pole Star Transformers, available in sizes up to 100 Kva, are equipped with safety devices for maximum electrical protection.

Pennsylvania

TRANSFORMER COMPANY
CANONSBURG, PENNSYLVANIA
Greater Pittsburgh District

Natural Gas Battle Resumes

Two companies are out in front in race to win Pacific Northwest market as Federal Power Commission resumes hearings

Battle for federal approval to bring natural gas into the Pacific Northwest appears to be boiling down to a bitter struggle between two pipeline companies.

As hearings resumed recently before a Federal Power Commission examiner, four competitors for the rich market were still making the race. But on the record made thus far, it appeared the nod would go either to Westcoast Transmission Co or Pacific Northwest Pipeline Corp. Both these have their papers in order to show they can deliver the gas if and when FPC gives the go-ahead.

Power Competitor . . . For the electric power industry, advent of reasonably priced natural gas in the Northwest means a new competitor. The argument being made, however, is that the new fuel will supplement electric power, rather than compete with it, in filling the areas power needs.

One pipeline estimates initial requirements for the hitherto untapped selling area is 200 million cu ft of natural gas per day. Translated into electrical units on an annual basis, this would be around 22 billion kwhr—or approximately the amount of electric energy consumed in Washington and Oregon during 1950. Within ten years, it is estimated this initial gas demand will be trebled.

Proposed Systems . . . Right now it looks as though the company that wins this market all to itself is the one that can prove to FPC in Washington that it has more and better reserves of gas all wrapped up for guaranteed future delivery to the customer.

Here is the lineup:

● Westcoast and its parent company Westcoast, Ltd, both Canadian-owned, would draw on Canadian fields in Northern Alberta and British Columbia to bring gas to the big Northwest cities. Its proposed system would include some 960 miles of main line on both sides of the border to be built at an estimated cost of $111 million. It claims proven reserves under contract of some 2.5 trillion cu ft. and all the permission it needs from Canadian authorities to bring the gas to the U. S. market. It proposes to serve Seattle, Tacoma, Portland, Spokane, and the atomic energy plant at Hanford. A second pipeline—Trans-Nortwest Gas, Inc—would take gas from the Westcoast system to eastern markets in the area.

● Pacific Northwest would bring gas up from the San Juan basin in the "four corners" area where the states of New Mexico, Colorado, Utah, and Arizona come together. It has its eye on the same Northwest markets which Westcoast is seeking, but in addition Pacific Northwest would serve several markets along the route of its lines from the "four corners" area including the eastern markets in the Northwest.

Other Applicants . . . Two other applicants—Glacier Gas Co of Butte, Mont., and Northwest Natural Gas Co of New York—would draw upon the gas fields in southern Alberta. But these two pipelines are hardly in the running at this point because they lack Canadian permission to bring their gas across the border.

Glacier is a subsidiary of Montana Power Co which is now bringing a limited amount of Alberta gas across the border to serve a single defense customer in Montana.

Northwest Natural claims reserves in southern Alberta of some 2.5 trillion cu ft under contract. It is hoping that negotiations can be resumed in April with the Alberta government to export this gas to the U. S.

Trans-Northwest proposes its transmission system within the marketing area. Its main lines would extend some 400 miles and call for an expenditure of some $20 million. It would depend on Westcoast or Northwest Natural for its source.

It is probable that FPC will eventually decide on one of the pipelines with applications now pending.

POWER BRIEFS

● Sacramento Municipal Utility District has awarded a contract for 3½ miles of special pressurized oil pipeline to carry high voltage electric power into the heart of Sacramento. Awarding of the contract marks the beginning of a $500,000-project being undertaken by SMUD to improve its system. A new station will be supplied with 115-kv power from a substation by means of an underground cable inside two pressurized oil pipelines. The oil-filled pipe system for transmitting high voltage power will be the first of its type west of the Mississippi. The project will be completed by September 1954.

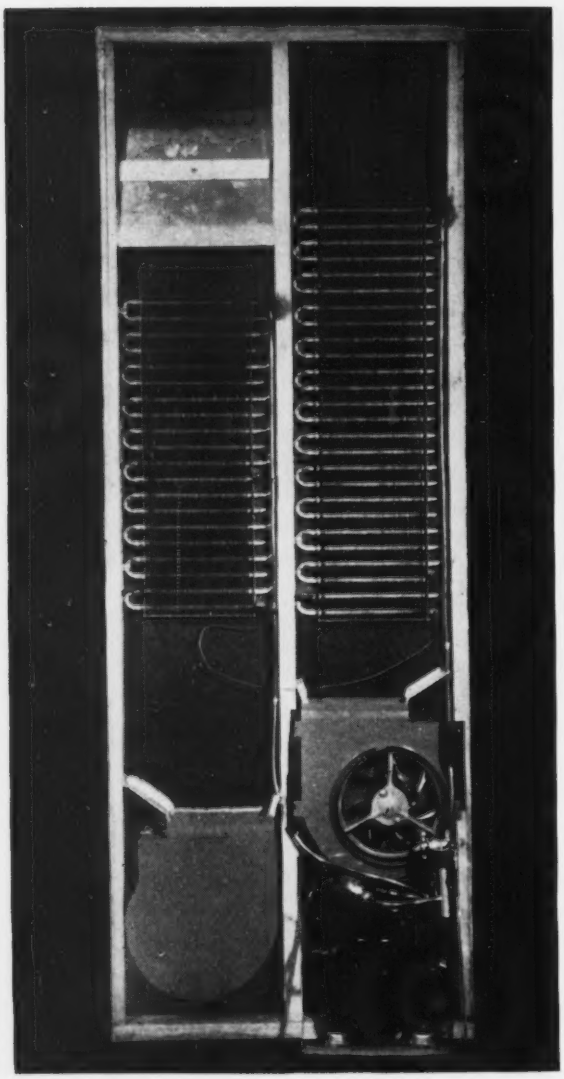
● Columbus and Southern Ohio Electric Co has scheduled a 90,000-kw generator for its Picway Station eight miles south of Columbus. The unit, to cost $15 million, is set for completion in the fall of 1955.

● The 25th anniversary of completion of Conowingo Dam of Philadelphia Electric Co was celebrated this month at a luncheon ceremony. Conowingo, on the Susquehanna River in Maryland, formed a 14-sq mi lake containing 150 billion gallons of water. Its plant is rated at 252,000 kw.

● Georgia Power Co has received a George Washington Medal of Honor from Freedoms Foundation for its community development program. The program was founded in 1944 as a means of assisting the people of Georgia in making their towns better places in which to live. The Champion Home Town Contest, for which the utility won the Coffin Award in 1950, is a major phase of the program.

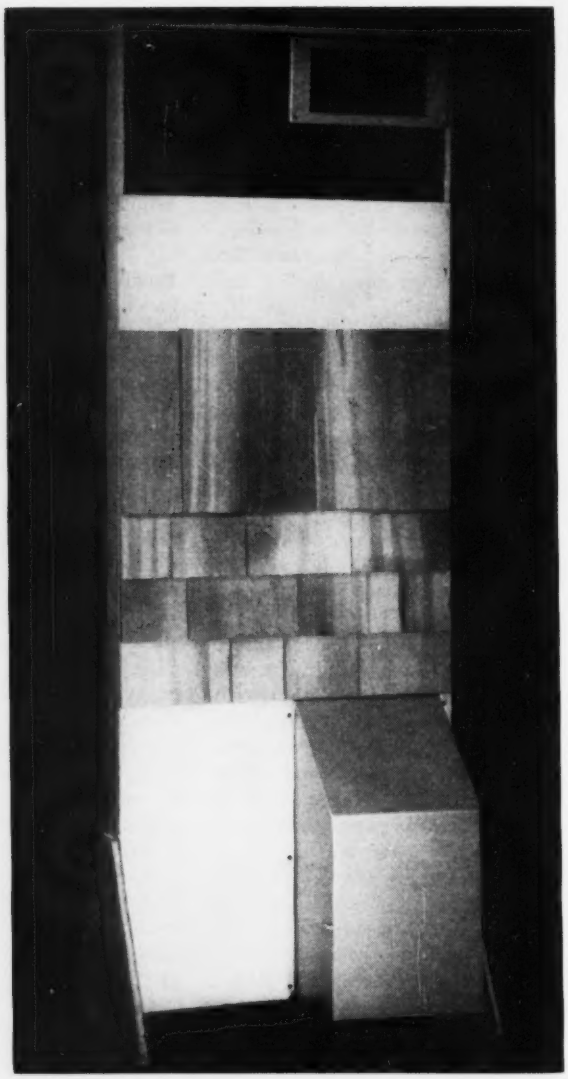
● Consumers Power Co, Jackson, Mich., will start work soon on a new service center at Flint which will cost $2 million and require about a year to construct. The center will serve Shiawassee, Lapeer, and Genesee.

● Ireland's Electricity Supply Board has announced plans for a five-year program to increase electric energy production by 248%. One-third of the increase in power output will come from three new peat-fired generating stations. The $61.6 million program also calls for construction of two hydro plants, one oil-fired plant, and two to be fired by coal or oil.



Inside View

Coils of the heat pump are installed between the studding. Air enters room through a grille at top, leaves at bottom. Grilles are not shown



Exterior View

Compressor, set in wall at ground level, extends outside. Sheet metal covering is 16 in. wide and 3 ft. high. Sidings are installed later

Miniature Pump Blows Hot or Cold

A miniature heat pump which can be installed between the studs of a house and is suitable for year-round room air conditioning has made its appearance. The unit was exhibited by the Electriglas Corp at the 11th International Air Conditioning Exposition at Chicago. The designer was Dr Carl Boester of Purdue University.

Flow of the air is in the same direction whether the unit is operating on the heating or the cooling cycle. Reversal of the cycle is accomplished by changing the direction of the flow of the refrigerant. The refrigerating capacity (½-hp compressor motor) of ½ ton is ample for cooling one room.

Heating capacity will be supplemented with one, two, or three 500-w fin-type heating panels in the air passage. These will operate on a two-stage thermostat. They will be in the wall or at the exposure to the interior of the house.

At the exhibit thermometers extended through the studs into the air stream to show temperatures of air going in and coming out. On the heating cycle the air temperature to the unit was 68 F and from the unit 110 F.

Contractors at the exhibit showed considerable interest and have approached several utilities on the possibilities of test installations in homes they are building.

Hearing Held on Eklutna Bill

House Interior Committee studies proposal to raise authorization limitation on USBR's Alaska project

Reclamation Bureau's 30,000-kw Eklutna power project in Alaska was back in the news last week on two counts:

1. The House Interior committee held a one-day hearing on HR 1374, introduced by Rep E. L. Bartlett of Alaska, which would raise the authorization limitation on the project from $20.3-million to $35-million.

2. Secretary of Interior Douglas McKay sent a letter to Congress endorsing the Eklutna project and including the draft of a proposed bill calling for an open-ended authorization for the continuation of the project.

Hearing March 3 . . . On the first count, little was settled and Reclamation officials who appeared were asked to return for a second hearing on March 13 and in meantime to provide the committee with more information on what the additional $15 million would be spent for.

On the second count, committee members took a dim view of McKay's request that the spending limitation be removed from the authorization. One committee member, Wayne Aspinall of Colorado, one of the ranking Democratic members, pointed out that the limitation on the bureau's commitment of federal money was the principal issue before the committee.

"There isn't a chance that the committee will approve an open-ended authorization for Eklutna," he commented.

Increase Seen . . . At the same time he predicted that after some of the Republican members of the committee have their say, the committee will increase the authorization.

"It's a question of whether the government will lose $20-million by killing the project," Aspinall pointed out, "or whether we will lose $500,000 to a million by completing the project." Repayment to the government for sale of the power generated at the project near Anchorage would repay the bulk of the construction costs.

Republican members of the committee like Rep John Saylor of Pennsylvania, chairman of the territories subcommittee, and Wes D'Ewart of Montana, chairman of the public lands subcommittee, contend that Reclamation has consistently given Congress lower estimates on projects than it knew they would cost. Further, they are peeved at Reclamation officials for overcommitting the $20.3-million limitation that the committee put on the original authorization.

Higher costs . . . Reclamation blames most of the increased estimates on the Korean War. It writes off $8 to $10 million on increased labor and materials costs since Korea and the rest to engineering difficulties encountered on the job.

Assistant Reclamation Commissioner Goodrich Lineweaver told the committee that the project is roughly 31% completed and that if authorization is increased and funds provided, first power from project will be available in fall of 1954.

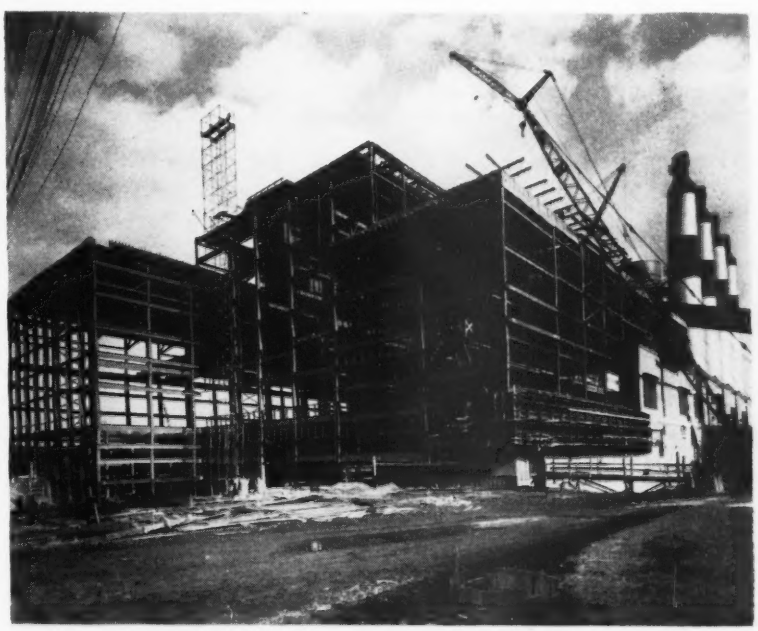
The project will supply power for the Anchorage and Palmer areas. Reclamation says that if funds are not increased during this session, work on the project will halt at the end of current fiscal year.

Utility to Ask Dismissal of California Suit April 9

The California third district court of appeals has set April 9 at the date for a hearing on the California-Oregon Power Co's request for dismissal of a suit filed by the State of California against the power firm.

The state's suit, seeks to restrain Copco from causing fluctuations in the Klamath River water flow.

The attorney general's action contends the operations of Copco's No. 1 and No. 2 power dams result in death annually to hundreds of thousands of young trout and salmon and endangers swimmers by sending sudden high water fronts down-river.



Framework for Ridgeland Addition

Insulated panel walls are now being installed at Commonwealth Edison Co's addition to Ridgeland Station (above) with the completion of the structural steel work. Simultaneously work will go ahead with the erection of boilers, turbines, and other facilities. The addition will house two 150,000-kw units, with the first scheduled to go on the line late in 1953. When the additional units are in operation Ridgeland will be the largest of 11 stations of the Edison system, with a capacity of 600,000 kw.

CVP Rates Criticized as Too Low

- **Reclamation power pricing policies attacked at hearing conducted by California legislative committee**
- **Witnesses tell lawmakers they fear rates are so low that they jeopardize the financial feasibility of the project**

Sharp criticism of the Bureau of Reclamation's power pricing policies in the Central Valley Project was heard at a three-day hearing of the California legislature's Senate-Assembly Water Problems Committee in San Francisco late in February.

Some witnesses expressed the fear the bureau had set CVP power rates so low that as to jeopardize the financial feasibility of the project, and hamstring construction of future water works. Others feared that long-term low-priced power sale contracts the bureau has made have "scuttled" prospects of state purchase of the multi-million dollar project.

Irrigation interests accused the bureau of setting up its repayment schedule to favor power customers at the expense of water users.

Legislature May Act . . . As a result of the hearings, the committee may propose state legislation requiring that CVP power contracts be validated by the state.

State Sen J. Howard Williams, committee chairman, advocated legislation which would give the California Districts Securities Commission the power to study the contracts and to repudiate them if they are not economically sound.

The committee report is now being prepared and will be available for consideration by the current session of the legislature.

The question the committee was most vitally interested in was whether the rates were set so low that the repayment feasibility of the project is threatened.

Contracts . . . The bureau presented to the committee a statement showing the bureau has or is in the process of completing contracts to provide electric service for 14 federal agencies, three state agencies, and other public agencies, including one Rural Electric Administration cooperative.

These contracts commit the entire 300,000 kw of dependable capacity from the Shasta and Keswick plants and about 80,000 kw of capacity from the Folsom and Nimbus plants on which work now is being done. The latter two units are expected to go into operation in 1955. The bureau estimates the preference customers involved will require delivery of the full commitment to them by 1960.

Revenues . . . Gross revenues under these contracts are estimated by the bureau to increase from an actual $797,683 in the calendar year 1952 to $8.6 million by 1960. The latter figure represents an average charge of about 4.8 mills per kwhr for the firm energy and 4 mills for the nonfirm energy to be sold to these customers under existing wheeling and firming arrangements with the Pacific Gas & Electric Co.

In its project repayment studies the bureau has assumed Congress will appropriate funds for a steam plant to go into service in 1957 and that transmission lines will be extended from time to time, as customers increase, through 1961. However, Congress consistently has denied the bureau funds for the steam plant.

"Construction of the additional project facilities assumed in our repayment studies will, we estimate," bureau representatives asserted, "improve the quantity and characteristics of our available power so that the average rate over the payout period will be 5.1 mills for firm and 3.3 mills for nonfirm energy."

Leland O. Graham, Sacramento regional counsel for the bureau, said the agency has set 50 years as the period for repayment of the costs of the various units of the total project, with the payout period ending for irrigation in 2005 and the power features in 2011.

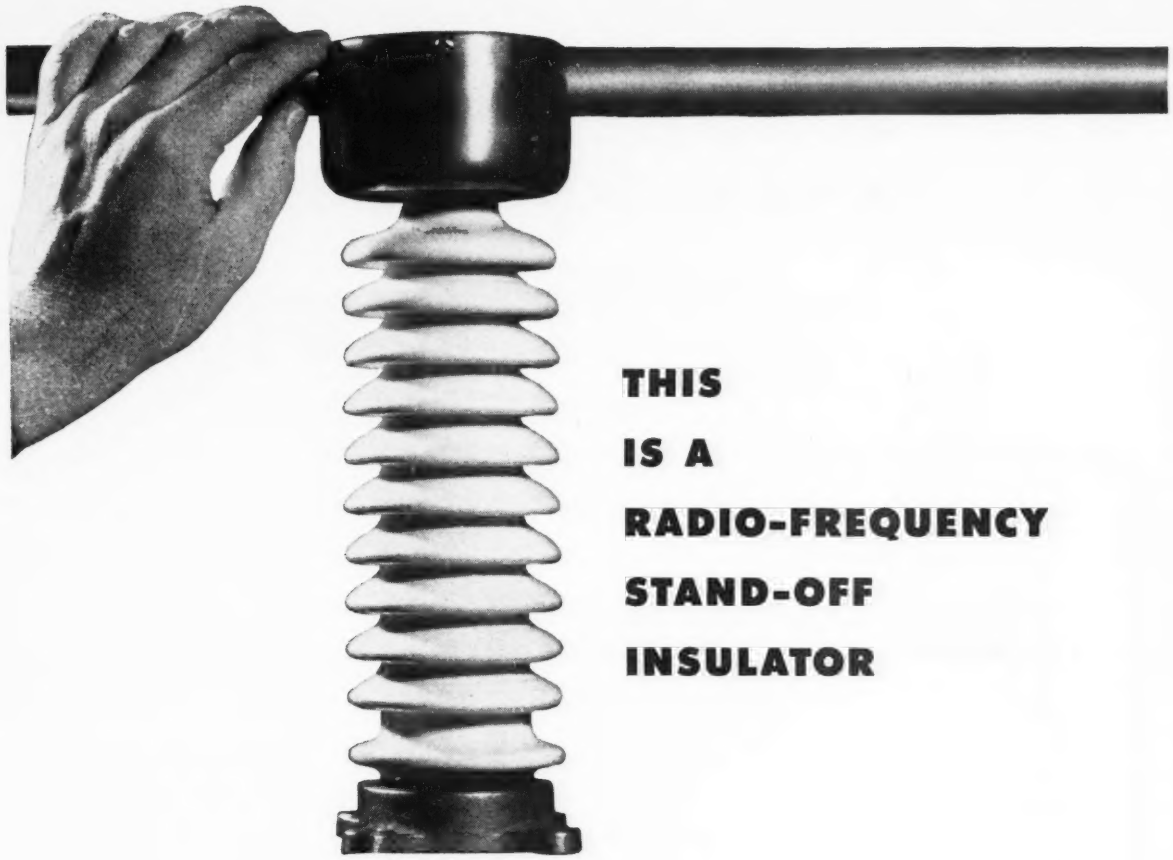
Low Rates Assailed . . . Robert T. Durbrow of San Francisco, executive secretary of the Irrigation Districts Association of California, comprising 141 irrigation districts in California, told the committee:

"The districts which have accepted

(*Continued on page* 35)

Ohio Edison Dieselizes Coal Hauling

Ohio Edison Co has modernized coal hauling operations at its Scioto Plant near Marion by replacing a trolley-powered motor-freight car with a diesel-electric locomotive. The new locomotive above, can handle 12 cars, which have a weight of 1,200 tons when loaded with coal. The coal cars are picked up to a railroad siding in Marion and hauled to the plant eight miles away.



THIS IS A RADIO-FREQUENCY STAND-OFF INSULATOR

This one of many "special duty" insulator designs engineered every year by Lapp to meet a variety of specific operating conditions—and produced by Lapp as the complete solution to special operating problems.

Like many Lapp insulators for duty at high frequency, the ceramic is of steatite. Lapp pioneered the development of this low-loss body for large pieces.

The unit pictured here is rated at 66 Kv at 1 megacycle—14.5 Kv at 20 megacycles (RMS values). Although this is an unusually high voltage requirement in radio frequency, mechanical duty is light. This permits the design of a ceramic piece small in neck section—the critical heating area. The cap, on the other hand, is provided with large radii and smooth surfaces to prevent corona. A special clamping or holding arrangement was devised by Lapp to permit longitudinal slipping of the conductor when necessary, but maintain good electrical contact.

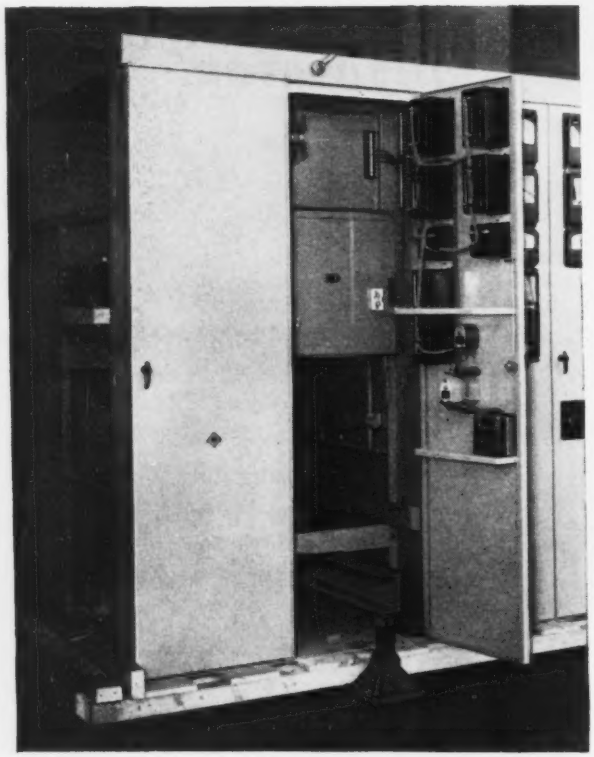
If you do not operate at radio frequencies . . . if corona is generally of only minor concern . . . you'll never need an insulator like this. But the chances are good that many of the operating conditions which are your responsibility are no longer operating problems because of the engineering ingenuity and production resourcefulness of Lapp. On insulating parts for many types of electrical equipment . . . on insulators for transmission or station use . . . the name LAPP is a guarantee of sound mechanical and electrical performance, of long life, of low upkeep.

Lapp Insulator Co., Inc., Le Roy, N.Y.

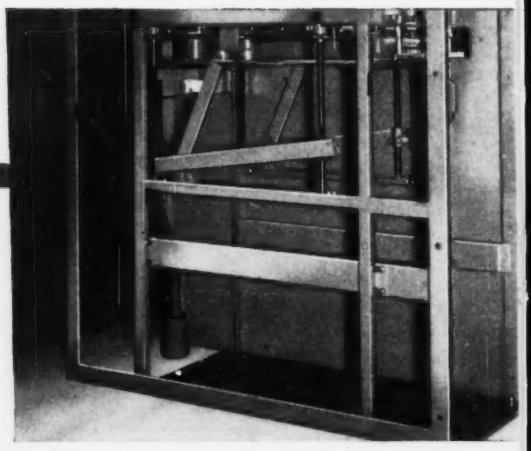
Lapp

Simplifies

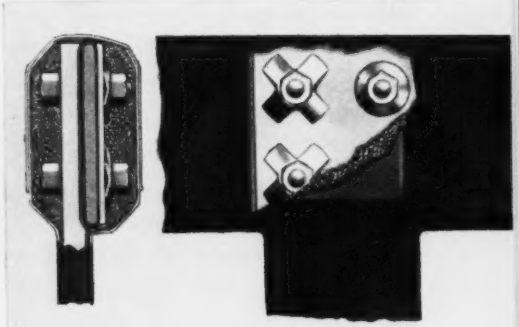
ALLIS-CHALMERS
METAL-CLAD
Switchgear



MOVING is an easy job even if there's no crane or overhead space. Installation-wise A-C engineers built in provision for jacking all indoor Switchgear units.



PLACING Switchgear over floor cable is done without lifting cubicles because A-C engineers designed the cubicle in such a way that it simply slides into place.



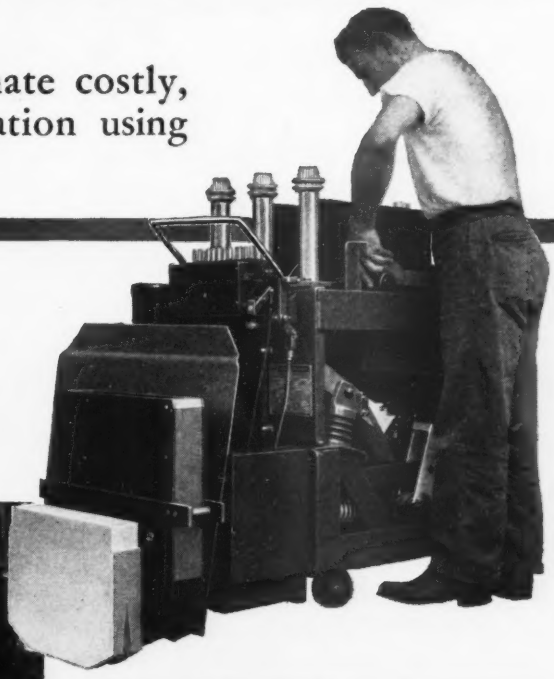
JOINING buses need no longer be a long, time-consuming job. Joint is bolted; then, no-corona tape is placed over bolt heads and nuts. Next, a molded Neoprene boot is slipped over the joint and taped in place. No fuss, no muss, no liquid compounds.

ALLIS-CHALMERS

A-C ALLIS-CHALMERS

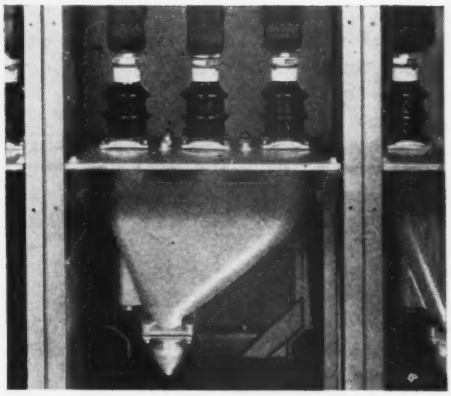
Installation!

Here are six ways you eliminate costly, time-wasting steps in installation using Allis-Chalmers switchgear.



INSPECTING contacts and arc chute during and after installation is only a three minute job with latest Allis-Chalmers circuit breaker. Only one nut to take off and all barriers can be lifted right out.

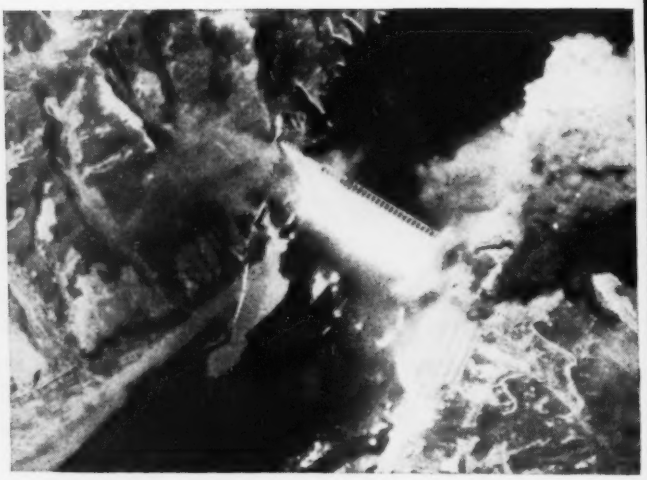
ALIGNING is easy. Allis-Chalmers builds every removable element and every stationary element to master jigs. This simplifies installation, and makes all units of same rating interchangeable.



INSTALLING a pothead can be done out in the open where there's plenty of room. After that it is simply pushed into place and bolted. No crossbars prevent swinging the pothead into place.

THESE are only details, but they do tell a story of careful engineering. It will pay you to find out more about Allis-Chalmers Switchgear. Call your nearby A-C District Office, or write Allis-Chalmers, Milwaukee 1, Wisconsin. A-3888

While United Nations planes are knocking out dams and power facilities in North Korea . . .



Barges Keep South Korea in Power

Headlines have pointed up destructive bombings of power plants on the Yalu River and vicinity since the outbreak of the Korean war. Overlooked in battle reports is that United Nations forces have had their share of trouble maintaining a continuous flow of power in South Korea. To restore facilities crippled by the Reds earlier in the war has required fast work and ingenuity—largely Yankee.

Raw material for their work has been the southern half of a modern power system extending 600 miles from the Yalu in the north to Pusan in the south. The net was built by Japan before it surrendered the peninsula as part of the settlement of World War II.

Operating under voltages of 220, 154, 110, and 66 kv, the many hydroelectric stations and fewer thermal plants are connected by a steel tower transmission system using aluminum conductors.

Today much of this network is still intact. Installed generating capacity is estimated at 1,875,000 kw, of which 1,672,000 kw is north of the 38th parallel.

Of the 203,000 kw capacity in South Korea, 146,000 kw is in thermal plants. However, these have a capability of only 35,000 kw because maintenance has been deferred and only low-grade coal is available.

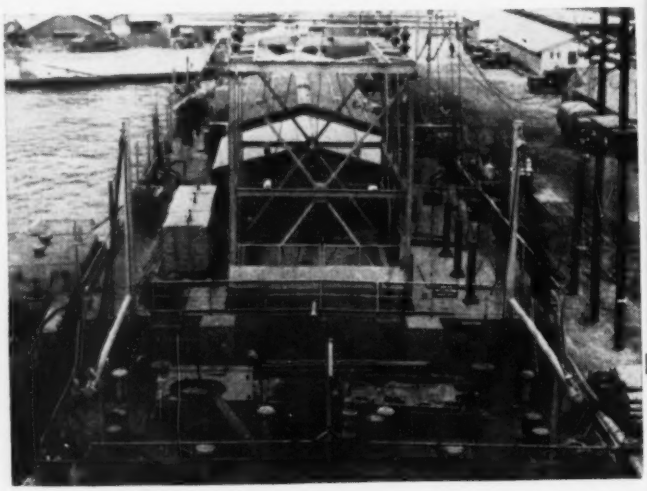
No Shortage . . . But South Korea is not short of power. It has available about 125,000 kw in firm power for a system demand of 120,000 kw.

Largely responsible for this situation are three floating power barges, which from shore-side locations are feeding 55,400 kw of power into key centers of population.

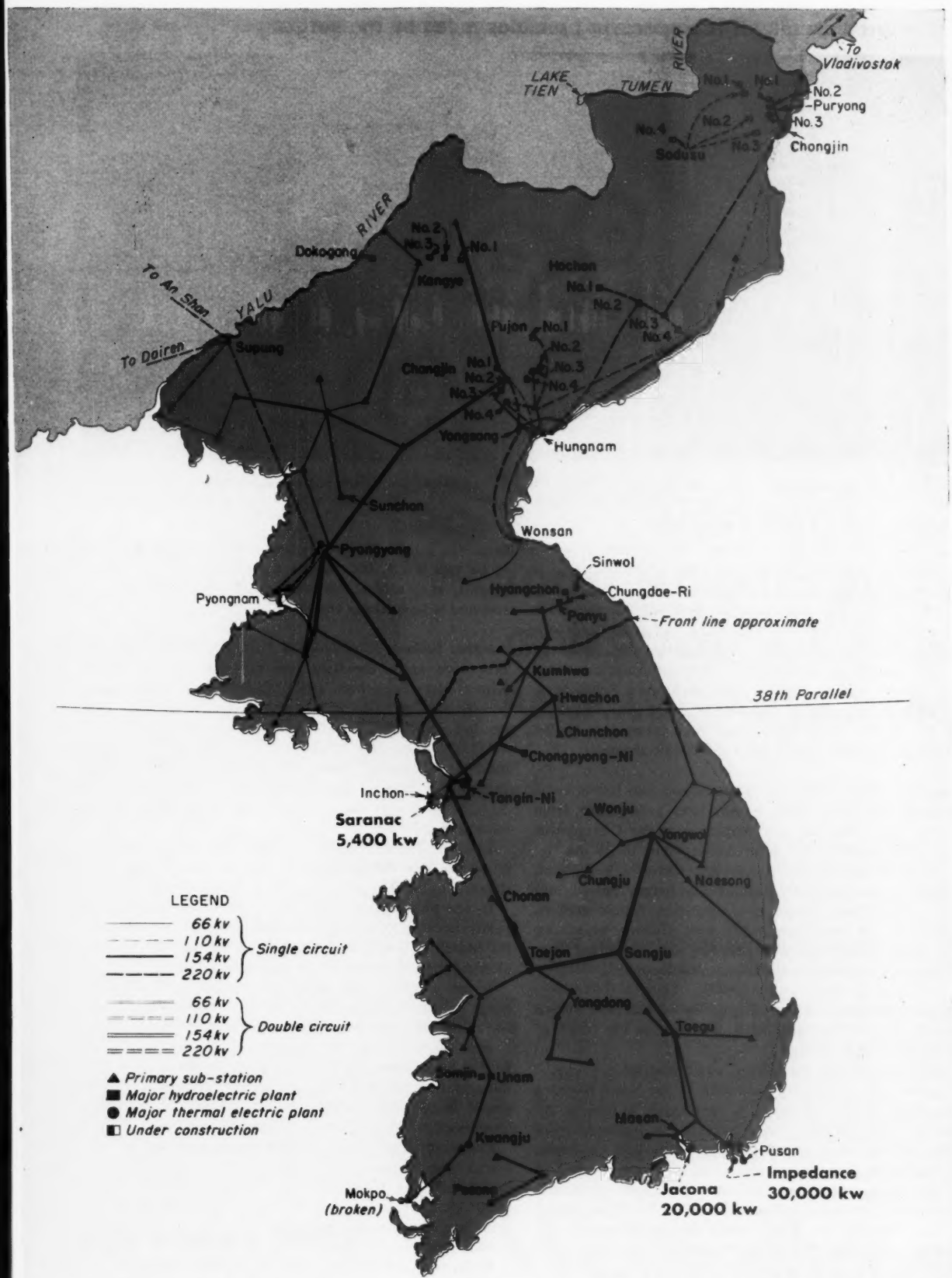
The first barges were rushed in by the United States shortly after joint occupation with Russia began. The Communists in industrial North Korea had started to periodically interrupt the flow of power from the north, disrupting the economy of agricultural South Korea.

To combat the practice, U. S. military forces brought in two floating plants in March, 1948: the Electra, a diesel

JACONA anchored at Masan, serving its shore-side substation through flexible ship-to-shore conductors, and . . .

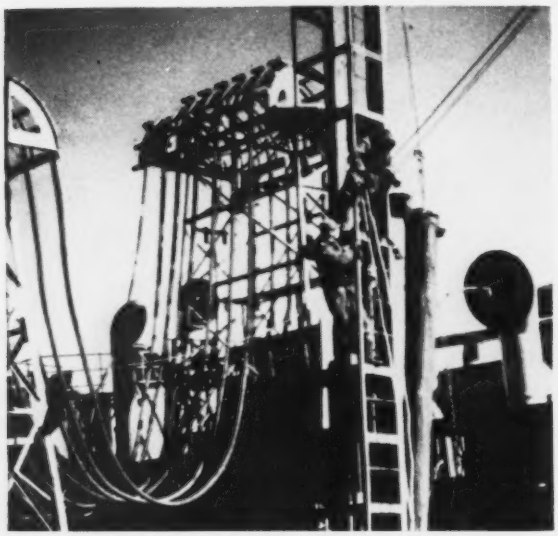


IMPEDANCE (top view) doing a similar job at pier-side in Pusan, while she takes on fuel from an adjacent tanker

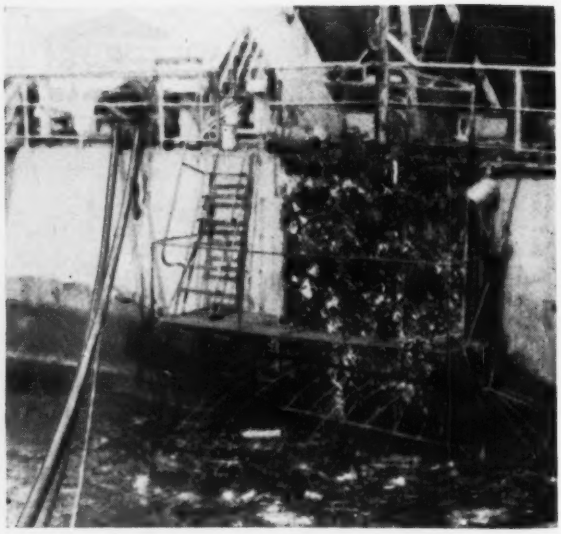


Power map of Korea shows locations of barges and other facilities on peninsula

Here are a couple of the operating problems faced by the barges



CONNECTING ship and shore requires that conductor cables be left slack to allow for movement of ship and the rise and fall of tides



ELIMINATING heavy trash load at water intake requires screen and water spray assembly similar to that used in land-based power plants

plant rated at 4,800 kw, connected into the power system at Inchon; and the Jacona, a thermal plant rated at 20,000 kw, connected up at Pusan.

The Electra had been designed and built by the U. S. Army Corps of Engineers and before going to Korea was used by the Army to supply power for dredging operations.

The Jacona was a World War I victory ship, converted to a power plant in 1929 by New Hampshire Public Service Corp. It operated at Portsmouth, N. H. until beginning of the second world war. It was then taken over by the Navy Department and used in the Pacific theater.

Pinch Hitters . . . The two plants floated into Korea not a moment too soon. Two months later power flow from North Korea was cut off completely as the Communists removed sections from lines feeding into the south.

When U. S. military forces left Korea a year later, administration and operation of the barges passed into the hands of the Economic Cooperation Administration. The ECA, in turn, contracted with Gilbert Associates, Inc., of Reading, Pa., an engineering and consultant firm, to supervise activities of the Electra and Jacona.

Disasters Mount . . . Early the following year, the Jacona was dead in the waters of Pusan harbor as the result of damages caused by fire.

Shortly thereafter the Korean war broke out.

In the face of the swift movement by the North Koreans there was no time for the U. S. detachment to remove the Electra from Inchon. So to prevent the valuable prize from slipping away, the barge was scuttled in the basin.

Additional damage to power facilities was caused as U. N. armies were swept back into the Pusan perimeter. Sole source of power left was the 4,000 kw Pusan plant.

That was the low point. After the amphibious U. N. landing at Inchon, the Reds began backtracking to the Yalu. The Korea Electric Power Co, with aid from ECA, followed up the advantage by repairing the Tangin Ni steam station in Seoul. This provided a rationed source of power for the capital city and Army installations there.

To top it off, the Jacona returned to Pusan late in August, after around-the-clock repair work in Japan had restored it to working condition.

Another Setback . . . Soon the Jacona and the Pusan station were again the only sources of power for South Korea. In December, 1950, the Chinese Communists entered the war, driving U. N. forces below the 38th parallel once more. But the Red push was short lived.

With the coming of spring, U. N. forces took the initiative, liberating many towns. This created a huge demand for power. To meet it, the Army called in the 30,000 kw power barge Impedance from Manila, and located it at Pusan.

Like the Jacona, which was then transferred westward to Masan, the Impedance was one of four barges constructed by the Corps of Engineers during World War II.

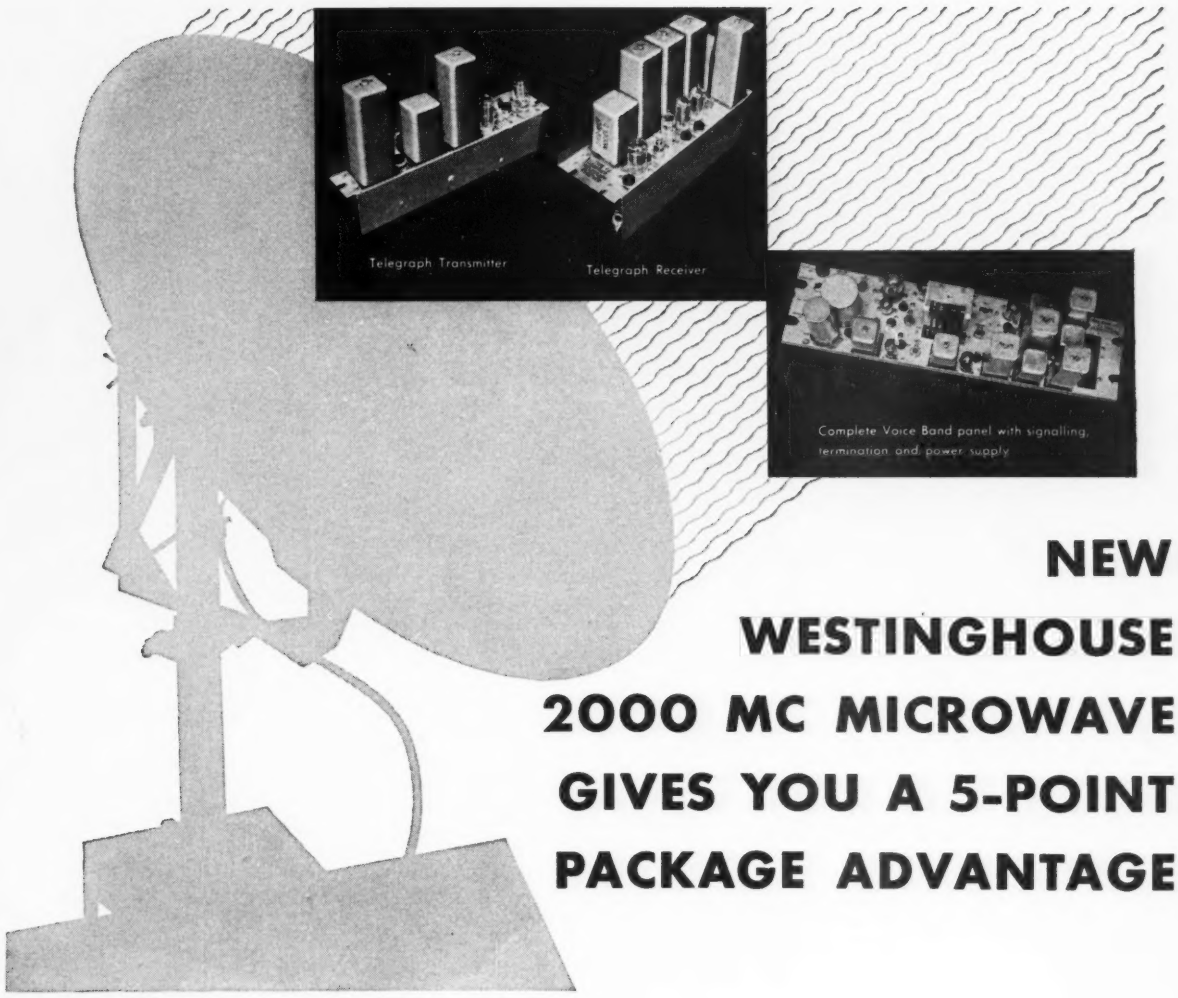
It was put into service in June, 1951, on reduced capacity because of the poor condition of its superheater. By March of 1952 it was operating at its full capacity after 81 days of repair work, 24 hours a day.

In late October 1951 it was joined by the third power barge currently serving in the Korean theater—the 5,400 kw converted oil tanker Saranac, anchored at Inchon.

United Operation . . . Since May, 1951, when ECA terminated its assistance program in Korea, control of the power barges has rested with the Army and Gilbert Overseas Corp, a subsidiary of Gilbert Associates.

Cooperating with them to keep Korea in power are the Korea Electric Power Co, the Eighth Army civil assistance group, and the United Nations Civil Assistance Korea (UNCAK). Together they have repaired and placed in operation on reduced capacity:

- Tangin Ni and Yongwol steam stations.
- Chongpyong and Hwachon hydroelectric stations.
- The transmission system running to Pusan from the Hwachon station in a part of North Korea in U. N. hands.



NEW WESTINGHOUSE 2000 MC MICROWAVE GIVES YOU A 5-POINT PACKAGE ADVANTAGE

1 Extra Flexibility. Design permits quick, easy changes of units to meet future changes or expansion.

2 Adaptability. Multiplex units are designed to operate readily with any type of interconnected equipment.

3 Dependability. Only the radio equipment is common to all channels; voice multiplexing units are completely self-contained, function independently of each other.

4 High Channel Capacity. Up to 30 duplex voice channels or 450 telegraph channels, or intermediate combinations of both.

5 Minimum Maintenance. Time-proven double sideband modulation in the multiplexing equipment provides reliable operation.

THE WESTINGHOUSE INTEGRATED PACKAGE

Westinghouse will deliver a microwave system to you on a turn-key basis. The package is fully integrated — since Westinghouse has full experience in all related types of equipment such as supervisory control, telemetering, and other telegraphic or voice functions.

GET THE FACTS

Check full details through your Westinghouse representative. Write or call Department M-60, Microwave Section, Westinghouse Electric Corporation, 2519 Wilkens Avenue, Baltimore 3, Maryland.

YOU CAN BE SURE...IF IT'S Westinghouse

J-02260

Meeting the Nation's Growing Power Load

Westinghouse "Big Ben"... world's highest interrupting capacity!

25,000,000 KVA at 330 KV

A most important question facing America's Utilities today is—"How do we transmit larger blocks of power at a cost low enough to make it practical and profitable?" The right answers to that question are receiving daily attention at Westinghouse.

One of the most recent answers is 330-kv transmission. "Big Ben"—the largest circuit breaker ever built, has been designed by Westinghouse to protect such a system. It is a 3-cycle interrupting, 20-cycle reclosing breaker capable of interrupting 25,000,000 kva and rated at 1600 amperes continuous current. This tremendous increase in breaker rating permits greater concentration of generating capacity . . . more extensive system interconnection . . . eliminates duplication of transmission facilities. Thus total system investment is minimized, and operating and maintenance costs reduced.

This design is an extension of the low-oil-content, dead-tank "Watchcase*" design—developed and perfected after 28 years of High Power Laboratory testing, and proved by field service.

Such products of research and design development give assurance to Electric Utilities that the race to economically satisfy America's growing power appetite will be won. The Westinghouse quest for more efficient, lower cost apparatus will continue to equip Utilities today—for tomorrow!

*Trade-Mark J-97174

YOU CAN BE SURE...IF IT'S

Westinghouse

"Big Ben"... Low-Oil Content . . . Dead Tank

9600 gallons instead of 20,000! The low-oil-content, "Watchcase" tank of the Westinghouse "Big Ben" requires only 9600 gallons of oil as compared with the 20,000 gallons needed for a conventional round tank. Thus this breaker saves weight, space, oil-handling costs and time, but retains the reliability, safety and economy of the time-proved, dead-tank design.

Condenser-Type Bushings

This high-voltage breaker design was made possible by the fundamentally sound electrical principle of Westinghouse Condenser Bushings. Equal capacitance steps, from high-tension stud to grounded flange, are obtained by layers of oil-impregnated kraft paper interspersed with layers of metal foil, carefully machine wrapped under close control. The resultant uniform voltage gradient in the Condenser and over the porcelain weather casing prevents areas of high-voltage stress, and thus eliminates radio interference. Add over-all, high cantilever strength of the bushing design . . . moisture-proof construction . . . low power factor . . . and you have high bushing efficiency and long life.

One Pneumatic Operating Mechanism

A single pneumatic mechanism simultaneously operates all 3 poles of "Big Ben". It is *mechanically* and electrically trip free. Contacts open without restraint since opening speed is independent of air pressure or exhaust time. The pneumatic mechanism (AA-14), with its 14″ piston used to close "Big Ben", has the same manufacturing precision and simple accessible mechanical lever system that has been so successful on the AA-7 and the AA-10 mechanisms. These have been used on the complete range of Westinghouse Oil Circuit Breakers from 15 kv, 500,000 kva through 330 kv, 25,000,000 kva. High-speed (20 cycles or better) reclosing characteristics are provided as required.

De-ion® Arc Control

Only two interrupters per pole are used to obtain "Big Ben's" 25,000,000-kva interrupting rating within three cycles. This minimum number of contacts—requiring less maintenance—is possible because of the multi-flow, jet orifice-type interrupter. This De-ion grid uses self-generated oil flow to interrupt medium and high currents and mechanically pumped oil to interrupt load and charging currents . . . all in three cycles. During interruption, oil and gas flow in the grid are balanced, so that high stresses do not reach bushings nor shift alignment. Interruption following a high-speed reclosing is effective because of the high-speed scavenging action of the pump, replenishing the oil supply of the interrupting chamber with fresh oil after each operation.

• • •

Additional advantage of the dead-tank design is that it makes possible the low-cost bushing potential device and bushing-type current transformers. Six potential devices—one per bushing—and a total of 18 current transformers can be provided in each breaker. Accurate billing metering, relaying or linear coupler applications are possible.

For further details on "Big Ben" and similar oil-type circuit breakers for high-voltage transmission, call your Westinghouse Representative—or write direct to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

NEWS ABOUT PEOPLE

Eaton Made Operating VP . . .

. . . of Brockton Edison. Long affiliated with Stone & Webster, newly elected official is former Blackstone Valley G&E employee

LOUIS F. EATON

Louis F. Eaton has been named operating vice president of Brockton (Mass.) Edison Co, reporting to Executive Vice Pres Walter A. Forbush. Until this new appointment, Eaton was division manager at Woonsocket (R. I.) for Blackstone Valley Gas & Electric Co.

Stone & Webster Veteran . . . Eaton has been associated for many years with utilities under Stone & Webster management. He was connected with the Boston and New York offices of Stone & Webster, Montaup Electric Co as assistant general manager, Blackstone Valley G&E both at Pawtucket and Woonsocket, and also spent 13 years with the Brockton Edison organization.

A graduate of Amherst College, the new Brockton executive also did graduate work in electrical engineering at the Massachusetts Institute of Technology.

McMurray Elevated to New Post

ROBERT McMURRAY

Robert McMurray, assistant general sales manager of Public Service Co of Indiana, has been promoted to general sales manager of the utility. He succeeds George O. Stewart who died recently.

McMurray has been associated with Public Service for more than 30 years. He began work in a power plant at Connersville, Ind., in 1922. Later he worked in the general headquarters engineering department before being transferred to the sales department.

After serving with the Navy as a lieutenant commander during World War II, he returned to Public Service's sales department in 1945. As assistant general sales manager, he was in charge of sales to industrial customers and rural electric cooperatives.

Stewart started his utility career with Kentucky Power & Light Co. He joined Public Service in 1918, doing sales work for 34 years. He was head of the utility's sales department for the past 15 years.

•

C. A. Watson, superintendent of Carolina Power & Light Co's Goldsboro steam plant, has been transferred to the utility's Cape Fear steam plant to fill a similar post. **Zack S. Teague** succeeds Watson as superintendent of the Goldsboro plant.

Charles I. Brady, Jr, for the past two years sales manager of the southern Pacific district of the Lighting Division of Sylvania Electric Products, Inc, has been appointed sales manager of the firm's fluorescent fixture department. Brady, a member of the Lighting Division staff since 1945, will make his headquarters in Wheeling, W. Va., site of Sylvania's fluorescent fixture manufacturing plant.

Lloyd L. Shawber was named operations manager of Westinghouse Electric Corp's Appliance Division, Mansfield, Ohio. Shawber, who started with Westinghouse in 1926, has served as an administrative assistant since 1945. Prior to this he was general engineer in charge of radio war products for three years.

William L. Manly, for the last several years special assistant to C. W. Schweers, vice president and director of sales for Allis-Chalmers Manufacturing Co's General Machinery Division, has been made assistant director of sales of the division. Manly began with Allis-Chalmers in 1937 as a field engineer in the Chicago office.

Charles R. Kirkbride has joined Kuhlman Electric Co, Bay City, Mich., as administrative assistant to the director of engineering. Prior to joining Kuhlman, Kirkbride was with Uptegraff Manufacturing Co, Penn Electrical Co, and Pennsylvania Transformer Co.

Herbert H. Potter has been named manager at Sudan, Tex., for Southwestern Public Service Co to replace **Max Houk,** who has assumed the managerial position at Olton, Tex.

Heads Aluminum Assn.

D. A. Rhoades, vice president and general manager of Kaiser Aluminum & Chemical Corp, has been elected president of The Aluminum Association to succeed A. P. Cochran, Cochran Foil Co, Louisville, Ky. The association also elected the following vice presidents: S. D. Den Eyl, Bohn Aluminum & Brass Corp, Detroit; Raymond Deutsch, Monarch Aluminum Manufacturing Co, Cleveland; and R. P. Stranahan, Stranahan Foil Co, Inc, South Hackensack, N. J. A. V. Davis, Aluminum Co of America, was re-elected board chairman and Donald M. White was reappointed secretary and treasurer.

Blast the Arc WITH DELTA-STAR'S NEW "JT-1"

Gas Blast Interrupting Device

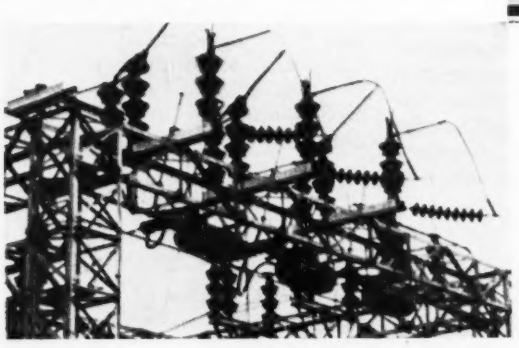
Delta-Star's new "JT-1" interrupting device for use with standard air switches is now ready for installation on your transmission systems. Extensive laboratory and field tests including many actual installations have proved the "JT-1" to be the ideal device for use on transmission lines from 69 to 161 kv where circumstances do not require the interrupting capacity or justify the use of a circuit breaker. With the "JT-1" installed on your air switches light loads can be interrupted without danger of long arcs causing phase-to-phase faults.

The "JT-1" is a gas blast device utilizing compressed nitrogen or air to "blow out" the arc at the contacts of a switch immediately after the arc has formed. The gas blast is controlled by a cam operated valve mechanism under each switch unit which is in turn operated directly by the switch operating mechanism. These valves open automatically when the switch blade reaches a predetermined position.

Since arc extinction does not depend on gas expulsion by disintegration of an arc chamber an unlimited number of operations are possible without replacement of parts.

The next time you have a problem where switches must be operated under load or long lines dropped, investigate the possibility of using Delta-Star "JT-1" interrupters. For full particulars write the factory or nearest district representative.

"JT-1" Interrupter mounted on 115 kv "MK-40" disconnect.



Installation of "JT-1" Interrupters on 115 kv "MK-40" 3-pole group operated switches. Photo shows blade position immediately after arc was extinguished.

WHEN YOU WANT THE BEST IN HIGH VOLTAGE SWITCHING EQUIPMENT SPECIFY DELTA-STAR

DELTA-STAR ELECTRIC DIVISION

H. K. PORTER COMPANY, INC.
2437 FULTON STREET, CHICAGO 12, ILLINOIS
DISTRICT OFFICES IN PRINCIPAL CITIES

Ohio Brass Elects 2 New VPs

Besides assuming executive posts, Roger Black and Louis Ott become general factory and sales managers, respectively

ROGER A. BLACK

Election of two new vice presidents has been announced by Ohio Brass Co, Mansfield, Ohio. Roger A. Black was elected vice president and general factory manager and Louis J. Ott was elected vice president and general sales manager.

Supervised Manufacturing Operations . . . Black, who joined the consular service following graduation from Princeton, has been connected with Ohio Brass since 1930. After working in the firm's Barberton and Mansfield (Ohio) factories, he went into the sales department and was sent to the New York office in the fall of 1931. He returned to Mansfield as a member of the foreign trade department, becoming manager of that department in August, 1932. Black was named in 1949 general factory manager, supervising manufacturing operations at Mansfield and Barberton, and Niagara Falls, Ont., Can.

LOUIS J. OTT

Handled Sales Activities . . . After his graduation from Amherst College in 1928, Ott joined Ohio Brass' advertising department, becoming advertising manager in 1935. In 1949 he was appointed general sales manager in charge of the firm's domestic and export sales activities.

Western Massachusetts Makes Treasury Changes

Charles E. Bankwitz, who has served as assistant treasurer of Western Massachusetts Companies and its wholly owned subsidiary, Western Massachusetts Electric Co, has been elected treasurer of the parent company. He succeeds Joseph F. Lyons, who has retired after serving 50 years in the utility field. Lyons was assigned to the treasurer's post in 1939. Bankwitz, whose headquarters will be at Turners Falls, will continue to manage the Central Division of the electric company.

In other appointments, James Gray was named treasurer and clerk of Western Massachusetts Electric and secretary of the parent company. Previously he was comptroller of both companies. Norman F. Plante, formerly assistant comptroller of both the parent company and its subsidiary, will now serve these companies as comptroller.

•

Chester I. Hall has retired from General Electric Co after 34 years' service, during which he acquired 139 company patents—the largest number held by an active employee. Among Hall's inventions was the power-station demand meter. When he retired he was serving as consulting engineer to GE's control department and the new industry control department.

Edwin J. Pearson, test supervisor of Carolina Power & Light Co's steam-electric plant at Lumberton, N. C., has been made superintendent of the utility's hydroelectric generating plant at Waterville, N. C. Pearson succeeds the late H. D. McDonald (EW, Feb. 23, p 203).

Charles F. Garman has retired as assistant general manager and chief engineer of the Los Angeles Department of Water & Power after serving in that capacity for more than a year. Garman, who joined the department in 1920, was chief electrical engineer for seven years before he was appointed to the present post.

Named Vice President

Gordon C. Brown, sales manager of the Fibron Division of Irvington Varnish & Insulator Co, Irvington, N. J., has been promoted to vice president of the company and general manager of the Fibron Division. Brown's successor as sales manager is Bernard M. Hoey, who has been with the firm since 1946. Brown joined Irvington in 1941.

OBITUARY

George R. Prout

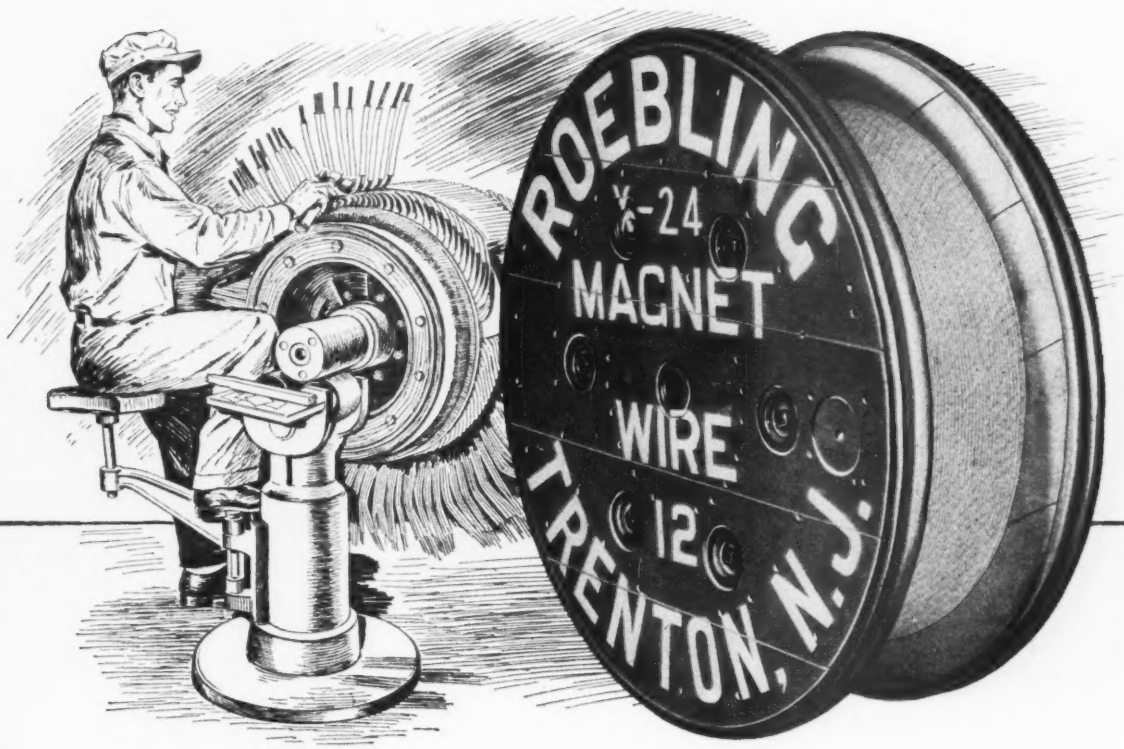
George R. Prout, 53, a vice president of General Electric Co, died at Schenectady, N. Y., March 8. As vice president in charge of nucleonic and atomic projects, he was responsible for GE's atomic energy activities, including Hanford Plutonium Plant, Richland, Wash., and Knolls Atomic Power Laboratory, Schenectady, where an atomic power plant for submarines is under construction. He also co-ordinated activities of the company with the Atomic Energy Commission. He had been with General Electric since 1920 and was elected vice president in 1945.

Courtland R. Maybin, 61, public relations director for Tacoma (Wash.) City Light, died Feb. 21. A former newspaperman, he joined the utility five years ago.

Dr Fayette S. Warner, 59, Federal Power Commission electrical engineer and a member of the FPC staff since 1933, died recently in Detroit. At the time of his death Dr Warner was on the staff of the commission's Division of Electric Resources and Requirements.

Now...a new high temperature magnet wire...

ROEBLING ROETEMP



ROETEMP MAGNET WIRE brings you a brand new and superior type of insulation for applications that involve high operating temperatures. Its heat-resistant properties and dielectric strength, its extra toughness and working ease make this new Roebling ROETEMP your top choice for Class B transformer windings and for other electro-magnet devices that operate up to 105°C., with a hot spot temperature of 125°C.

Roebling ROETEMP Magnet Wire is insulated with a specially processed tape applied in a single wrap with a liberal overlap. It is exceptionally pliable and bends without cracking or separating from the conductor. It won't unravel; is ideal for higher speed winding; comes in a range of sizes from #1 to #12 AWG, round, square and rectangular.

Write for data on Roebling ROETEMP Magnet Wire. . and Roebling silicone bonded ROEGLAS wires for special temperature problems. John A. Roebling's Sons Corp., Trenton 2, N. J.

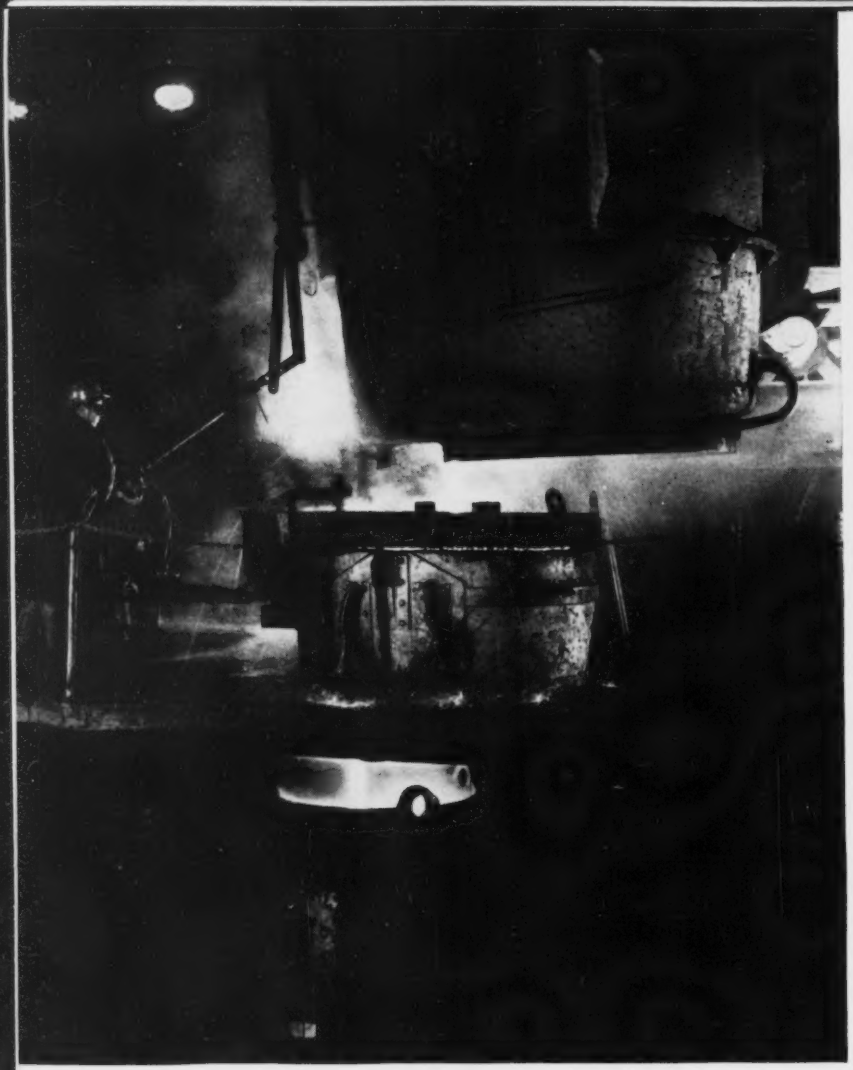
A subsidiary of The Colorado Fuel and Iron Corporation

ROEBLING

ATLANTA, 934 AVON AVE • BOSTON, 51 SLEEPER ST & 5 PITTSBURGH ST • CHICAGO, 5525 W. ROOSEVELT RD • CINCINNATI, 3253 FREDONIA AVE • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST • DETROIT, 915 FISHER BLDG • HOUSTON, 6216 NAVIGATION BLVD • LOS ANGELES, 5340 E. HARBOR ST & 120 S. HEWITT ST • NEW YORK, 19 RECTOR ST • ODESSA, TEXAS, 1920 E. 2ND ST • PHILADELPHIA, 230 VINE ST • PITTSBURGH, 1301 CLARK BLDG • ROCHESTER, 1 FLINT ST • SAN FRANCISCO, 1740 17TH ST • SEATTLE, 900 1ST AVE S. • ST. LOUIS, 3001 DELMAR BLVD • TULSA, 321 N. CHEYENNE ST • EXPORT SALES OFFICE, TRENTON 2, NEW JERSEY

CF&I

JAR ROEBLING



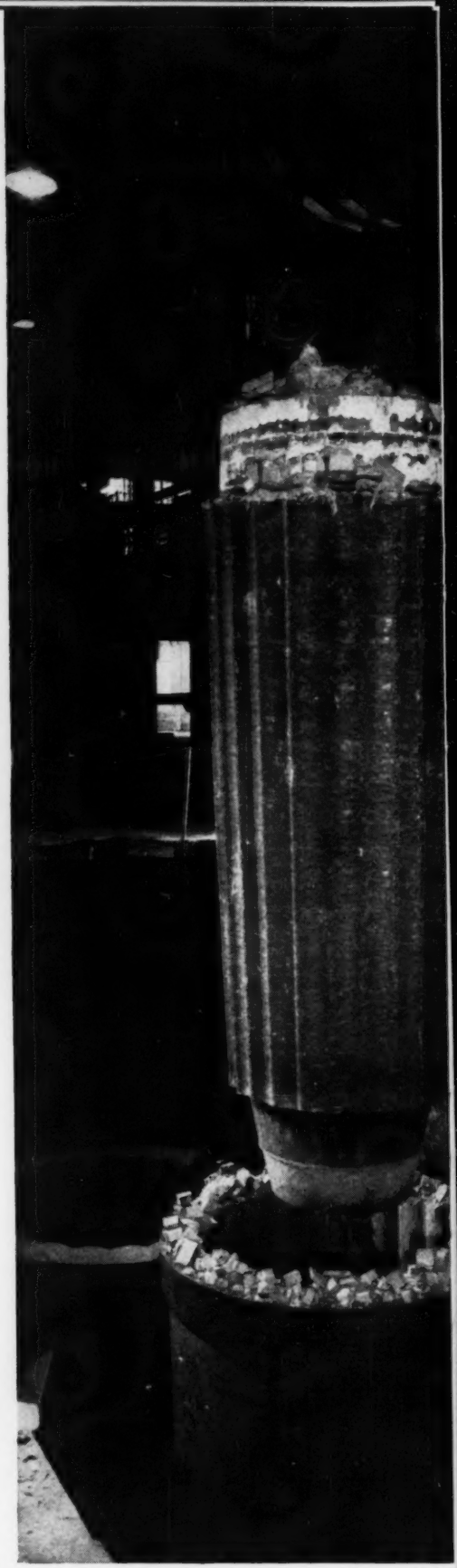
1. THE STEEL is teemed at the company's Bethlehem Plant

Life Begins for a Generator Shaft

The life of a generator shaft begins with a heat (batch) of steel. This is teemed into an ingot mold which is removed two days later. The ingot is reheated for four days, and in six days of forging the shaft begins to take shape. This rough form is heat treated for 25 days and then machined for 30 more. It now looks like a shaft, but it is not yet ready for shipment. Inspection tests take 20 days and physical tests three. Then the customer does his own inspecting, and this with loading for shipment takes another five.

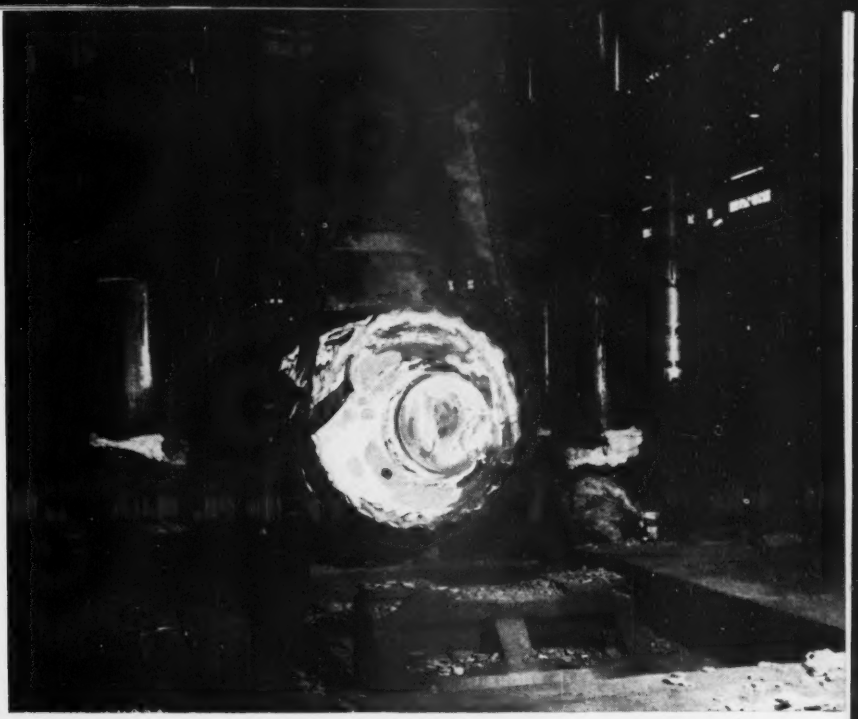
Total time from teeming to shipment is 95 days. In this period the ingot loses 60% of its weight, and it loses still more when the generator manufacturer machines it to the fine tolerances such shafts must have.

For five stages in the early life of a generating shaft see the pictures taken in the Bethlehem Plant of Bethlehem Steel Co.

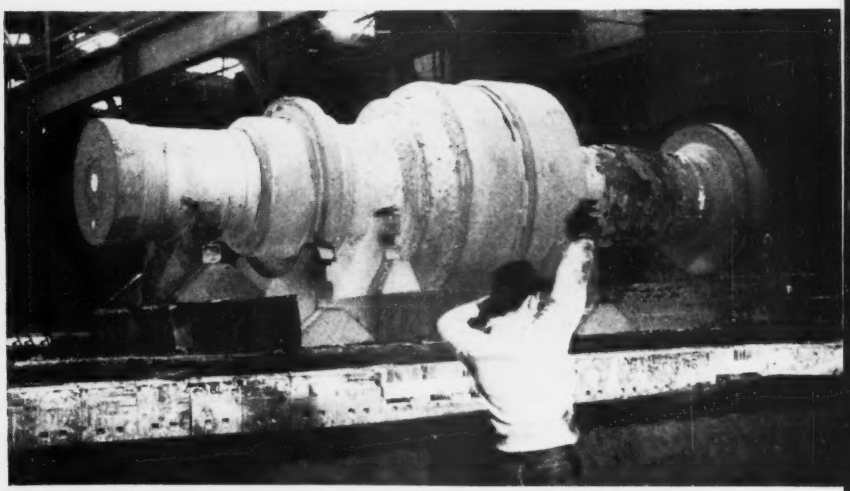


2. THE INGOT is stripped, but the inside i

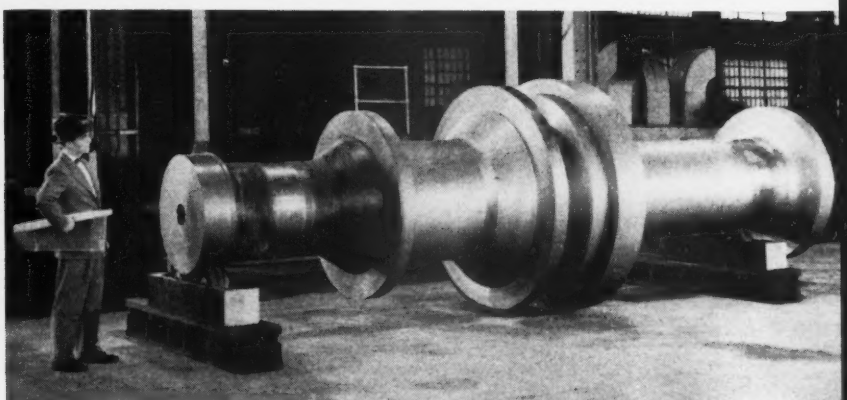
ill red hot. Man at right is dwarfed.



3. **FORGING** of the reheated ingot slowly shapes it



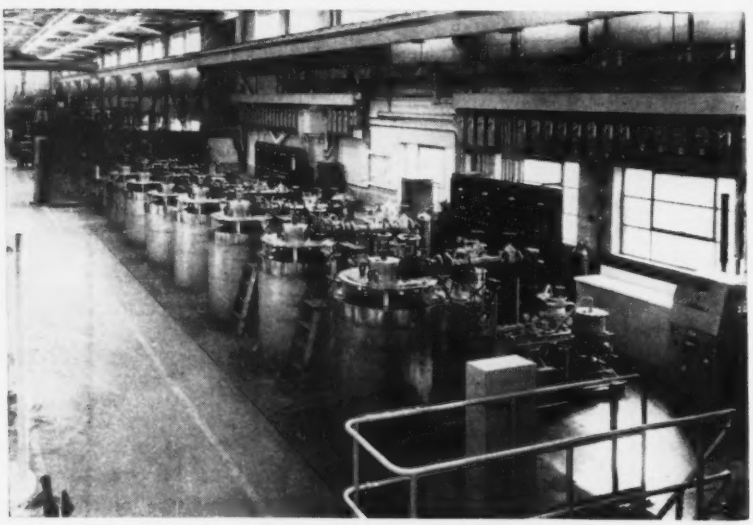
4. **SHAPED** and heat treated shaft goes to machine shop



5. **ROUGH MACHINED** it is ready for shipment to manufacturer

Westinghouse Ups Zirconium Output

GLISTENING ZIRCONIUM "crystal bar" emerges from tank which was flooded with water as a precaution against fire. Where once were wires now are bars of 99.9% pure zirconium



ZIRCONIUM production aisle was designed, equipped, and put in operation in 14 weeks. Tanks are furnaces in which deposition process shown in picture above takes place

Mass production of zirconium has been revealed by Westinghouse Electric Corp. Zirconium, a corrosion-resistant, cheap material for atomic power plant use, is linked with uranium in importance as a material for construction of a submarine and other "nuclear reactors."

"For water-cooled nuclear reactors —such as the Westinghouse submarine reactor—zirconium is one of the best materials that will work," said Dr W. E. Shoupp, director of development for the firm's Atomic Power Division.

No Neutron 'Waste' . . . Zirconium is lighter than steel. It has remarkable corrosion-resistance, an extremely high-melting point, and is quite strong and workable. It does not "waste" neutrons—the atomic particles that split uranium atoms and keep the atomic engine "running."

When atomic scientists tackled the assignment of building the first submarine reactor, there was not enough zirconium available. The Atomic Energy Commission then permitted Westinghouse to mass produce its own.

Westinghouse began this work in July, 1950, when it was apparent that pieces of zirconium the thickness of a lead pencil and costing $250 a lb were not going to be sufficient.

Within 14 weeks after entering the field, Westinghouse had set up a zirconium refining plant, staffed it, and put it in full production. In that period production of 99.9% pure zirconium "crystal bar" was boosted from several hundred pounds to thousands of pounds per month.

The zirconium production process began with what is called zirconium "sponge"—porous chunks of metal resembling coke. The sponge, produced by the Bureau of Mines at Albany, Ore., is the result of a six-step reduction process that begins with zirconium-bearing sands from ocean beaches. Zirconium ore, which is much more plentiful than uranium, is found in the beaches of Florida and Oregon, and in many shore locations throughout the world.

CVP Rates Criticized

(*Continued from page* 18)

the low priced power contracts have had little choice but to accept them, in view of the very substantial benefits which the lower prices give to the affected area . . .

"The total area benefited by such low priced power, however, if all the available power of the CVP were sold at those rates, is relatively small, and people receiving lower rates are relatively few compared with the total population of the state.

"Directors of districts must not be blamed for accepting a windfall for their districts in spite of the fact that this may jeopardize the financial feasibility of the CVP, and that it will almost certainly make more difficult the completion of the State Water Plan.

"The fault for disposition of the assets of the CVP at less than market value must lie with the policy makers who authorize the lower priced power sales in the mistaken belief that such a policy will make the reclamation program more popular.

"The policy of this state is in the hands of the legislature and I believe that this committee can do a real service to the legislature and the state by recommending some sound policy for the development of the water resources of the state, for the manner in which the benefits of water development projects are distributed, and for the basis upon which new projects shall be justified."

Legal Question . . . Edson Abel, counsel for the California Farm Bureau Federation claimed there is a serious question as to the legality of the power contracts.

He declared there is a doubt in his mind because of the fact they "impair the efficiency of the CVP as an irrigation enterprise as required under reclamation law."

Abel added:

"In our judgment the contracts are crucifying irrigators for the purpose of setting up a socialistic empire for the gratification of the management of the Bureau of Reclamation."

Abel told the committee the project lost $1.7 million from July 1, 1950, to June 30, 1951, as the result of the bureau contracts with preference agencies. This sum, he said would have been gained if the entire output had been delivered to PG&E.

Although the preference groups pay the same price as PG&E does for CVP power, under the wheeling arrangement PG&E receives 1 mill per kwhr, payable in power, for use of its facilities in delivering the energy to the preference agencies.

SMUD Contract . . . Abel and William M. Harrison of Delano, chairman of the Statewide Committee for California Ownership of the Central Valley Project, leveled criticism particularly at the bureau's contract with the Sacramento Municipal Utility District.

Harrison said the contract, to take effect July 1, 1954, commits delivery for a 40-year period of the great bulk of firm CVP power to the people of one city at 17% less than the rate being charged SMUD by PG&E.

Harrison said in the view of many this has resulted in virtually scuttling prospects of state ownership of the CVP because the state cannot buy the project if it is burdened with long term power sale contracts at rates which may be insufficient to pay off the project's cost.

SMUD's answer to the contract signing criticism was made by James E. McCaffrey, general manager, and chief engineer.

"Since 1934, a period of nearly 19 years," McCaffrey declared, "it has been the declared intention of the utility district's board of directors to obtain, if possible, a supply of electric power from the Central Valley Project. It was unmistakably clear that such power represented the lowest cost power available in northern California and promised to be such for a long time to come.

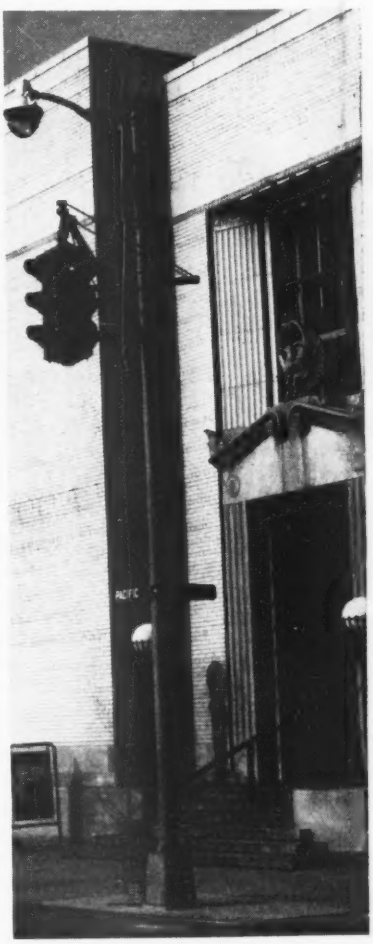
"The rate in the SMUD-Bureau contract is the same rate which the Bureau has applied for the past seven or eight years to sales of the firm electric power to PG&E and so far as we know it has not been demonstrated that the rate is inadequate to accomplish repayment of the Central Valley Project under Reclamation Law."

Power Cost Study . . . Data presented to the committee by the State Engineer A. D. Edmonston tended to show the fair market value for CVP power would be 7 mills per kwhr.

The report pointed out the average cost for power and energy from hyrdoelectric generating facilities recently completed and added to the facilities of PG&E is estimated to be in excess of 7 mills per kwhr delivered near the load center of that company's system.

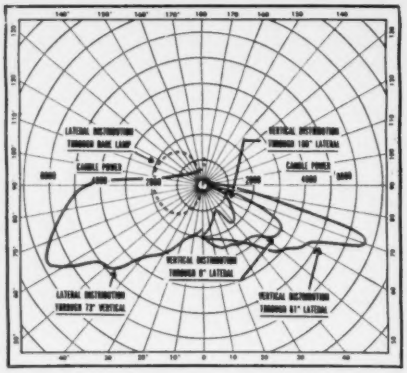
The present average cost of producing power and energy at a new steam-electric generating plant near the northern California power market load center, Edmonston added, is about 7 mills per kwhr on a basis of private financing and about 6 mills per kwhr on a basis of public financing.

M. J. Dowd, engineer for the Imperial Irrigation District, said the bureau's repayment plan was set up apparently to "favor power users."



Bright Lights

Newly installed street lights on Atlantic City's busy Pacific Avenue are part of a five-year program of lighting modernization being undertaken by Atlantic City Electric Co under contract to the city. The standard is equipped with a weatherproof type of duplex outlet for decorative lighting purposes. New luminaires and 1,000 cp lamps will produce an average of 1.2 ft-candles compared with 0.7 for the old lights.



The L-M *Ovalite* takes either incandescent or horizontal-burning mercury vapor lamps. Mercury lamp is high up in the reflector. This, combined with the design of the HOLOPHANE® refractor, results in low surface brightness and less glare, and a broad light-distribution pattern as shown by the curves in the chart.

New design of L-M Ovalite gives improved light distribution for mercury vapor

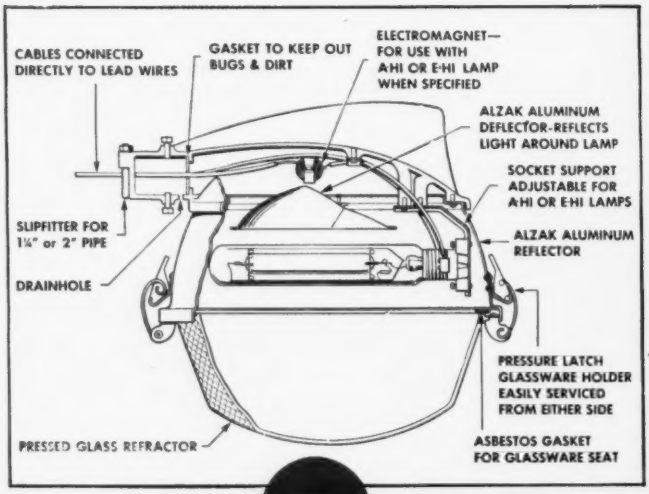
The new *Ovalite* is designed for high intensity lighting over a wide area. The rectangular Alzak reflector provides asymmetric light distribution. An Alzak deflector passes the light down around, not through, the lamp. Prisms on the house side of the Holophane refractor re-direct the light toward the street. Optional magnetic arc-control feature holds the arc in the optical center.

Lower mounting height—Unlike mercury vapor units with narrower distribution, the *Ovalite* provides wide IES type IV distribution. This means that the *Ovalite* is effective at lower mounting heights of 25 to 30 feet, which saves pole costs and maintenance. The use of elevating prisms in the refractor results in low surface brightness and minimum glare.

Unusual easy-service feature—Pressure latches on both sides hold the glassware snugly. Either latch acts as a hinge when the other is opened, permitting service from either side. An exclusive L-M feature.

Pendent or side-mounted, for either mercury or incandescent—The *Ovalite* takes mercury vapor E-H1, 20,000 lumens; A-H1, 15,000 lumens; or A-H5, 11,000 lumens; or incandescent lamps up to 15,000 lumens series. Slipfitter and pendent mountings in 1¼" or 2" sizes.

GET THIS FREE OVALITE BULLETIN
The *Ovalite* bulletin provides details on design, use, types, ballasts. Ask your L-M Field Engineer for a copy or write Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).


CABLES CONNECTED DIRECTLY TO LEAD WIRES
GASKET TO KEEP OUT BUGS & DIRT
ELECTROMAGNET—FOR USE WITH A-HI OR E-HI LAMP WHEN SPECIFIED
ALZAK ALUMINUM DEFLECTOR-REFLECTS LIGHT AROUND LAMP
SOCKET SUPPORT ADJUSTABLE FOR A-HI OR E-HI LAMPS
SLIPFITTER FOR 1¼" or 2" PIPE
ALZAK ALUMINUM REFLECTOR
DRAINHOLE
PRESSURE LATCH GLASSWARE HOLDER EASILY SERVICED FROM EITHER SIDE
PRESSED GLASS REFRACTOR
ASBESTOS GASKET FOR GLASSWARE SEAT

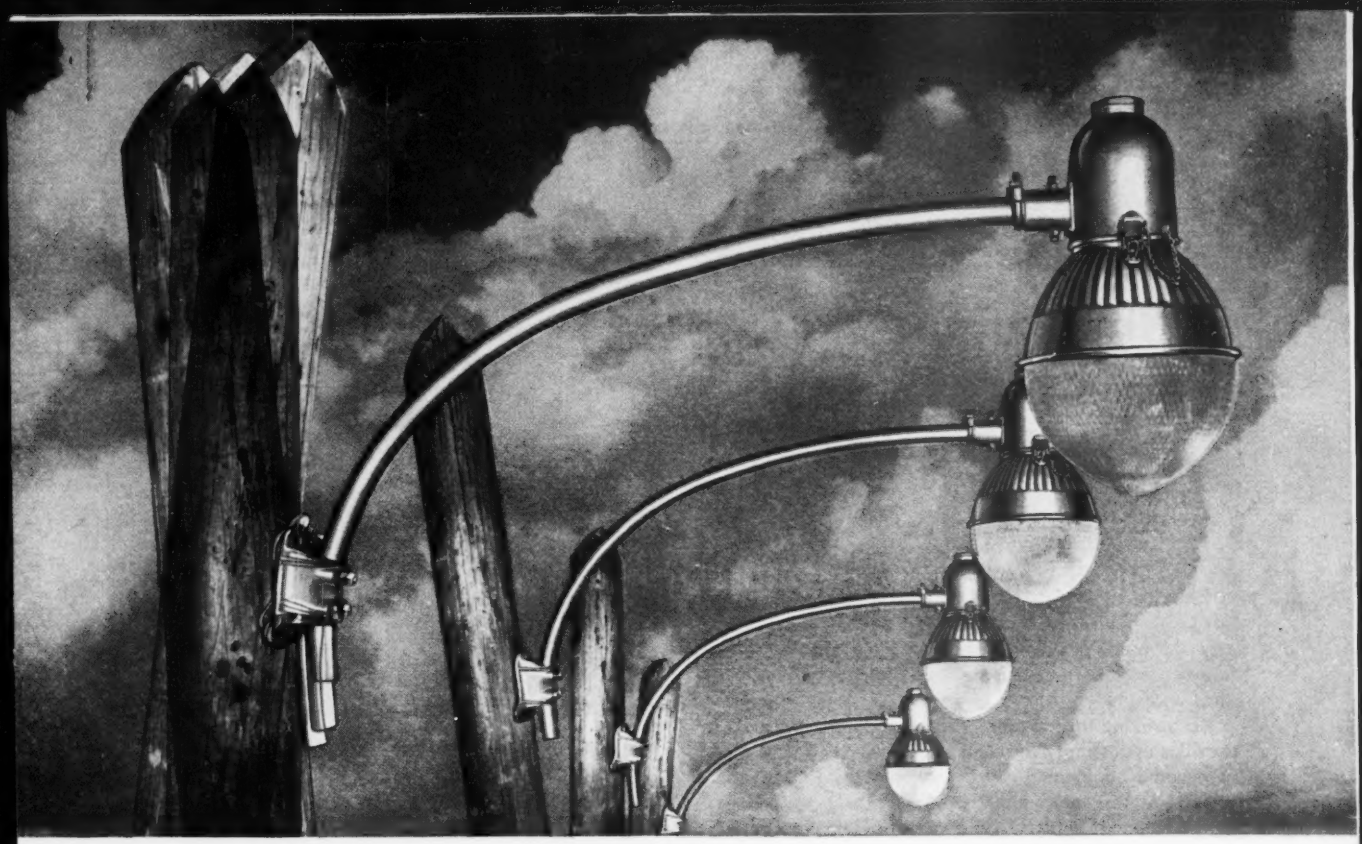
Note the rectangular reflector, the deflector, and the mounting of lamp well up in the reflector.

LINE MATERIAL

Street Lighting

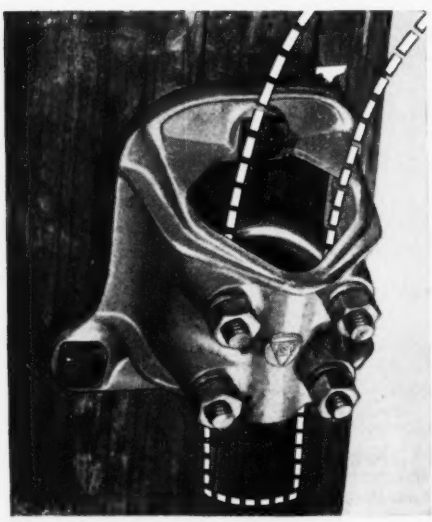
82

Ovalite is an L-M tradema



Luminaires Easier to Align With L-M's New Adjustable Bracket

Features integral plumbing for wide ranges of pole rake . . . clean, modern lines . . . easy installation and wiring . . . minimum pole-space requirement.



Really rigid: **the pole plate is a sturdy casting, either steel or aluminum, rigidly held to the pole with a machine bolt at the top and two lag screws below. Two U-bolts grip the bracket firmly. It requires a minimum of pole space.**

Here is a new single curve upsweep bracket that makes it easy for you to plumb the luminaire. The bracket has pleasing, functional design; it is made in either steel or aluminum; it is easy to install and wire; and it is available with all conventional end-fittings.

Easy to adjust: the curved pipe is clamped into the pole plate with two U-bolts. By moving the pipe up or down, you change the angle to compensate for almost any degree of pole rake. Then you tighten the U-bolts, and the bracket remains rigid in the desired position.

Easy to install: the pre-wired assembly is attached to the pole by means of an open-slotted pole plate, which fits over a single machine bolt at the top. The entire weight of the assembly is firmly held this way, while you install two lag screws at the bottom of the pole plate. This mounting requires a minimum of pole space.

Easy to wire: the one piece bracket is a single curve, with smooth contour. There are no sharp bends or extra units through which the wiring must be guided. You just slide the wire right through—it saves time and helps assure a good job. Ask the L-M Field Engineer for full information, or write Line Material Co., Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

LM **LINE MATERIAL**
Street Lighting

84

To Up Electricity Use on the Farm . . .

power company stages tours by its farm service advisors so that each may learn of developments in areas covered by others

J. C. CAHILL, Farm Service Co-ordinator
The Detroit Edison Co

To bring to farmers in the area he covers, information, not only on how other farmers are putting electricity to practical use, but also how they are improving operations in other ways, is a principal duty of the power company farm service advisor.

Recognizing this responsibility, the Detroit Edison Co, provides opportunity for each of its farm service advisors to become acquainted with developments in the areas covered by the others.

There are 13 counties and county fractions in the territory served by the company. Covering 7600 square miles, the territory contains about 220 townships in which there are over 35,000 farmers. The territory is divided into 11 parts to each of which a farm service advisor is assigned.

Included in the area are beef cattle raising and fattening, pedigreed bull production. There are specialists in the raising of apples, peaches, berries, sugar beets, celery, mint, potatoes and chicory. Such diverse production gives rise to as diverse problems—and gives electricity just as diverse opportunity to be real "electric Farmhand."

Within its service area Detroit Edison has found that many farming-with-electricity methods are localized—not general knowledge. And, although a certain use of electricity may have been developed for a particular crop, it very often may be profitably adapted to the production of another. All that the alert farmer needs is knowledge of the method, and curiosity as to how it might be m to work for him.

So the company is trying, by conducting organized tours of its farm service advisors, to qualify them as direct channels of communication between one farm-crop area and another. And although the advisors are naturally more interested in processes or methods which utilize electricity, to be most helpful they take time to learn about any procedure that they think will help the farmers of their particular areas.

It has worked like this:

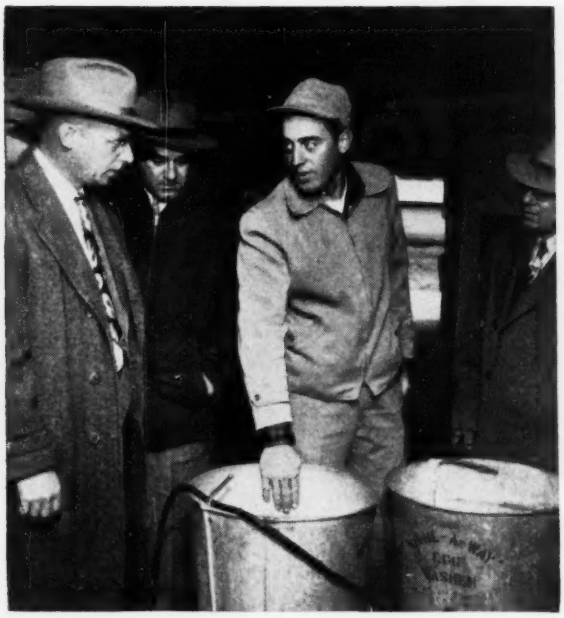
Each of the 11 advisors in turn, working from detailed knowledge of his particular area, selects a list of outstanding farms (and sometimes small rural industries), then arranges for his co-workers from other areas to visit them. Owners or operators are available at each stop on these tours to explain problems and operations—very often the county agricultural agent is an ex-officio member of the tour to add his knowledge to the discussions.

Eggs by the Thousands . . .

Mass production of eggs is shown to the tourists at the Conrad poultry farm. A four-story, 45 ft x 200 ft building shelters 9600 birds—has a capacity of 12,000. Feeding and caring for that many birds, and the resulting eggs, requires maximum mechanization, most of it achieved through electricity. The father-and-son team who own and operate the farm are successful enough to demand and get a 6¢ per dozen premium price (6¢ over the top

Modernized Means Electrified

Modernized milking features the Merle Hazelton dairy farm. Opportunity arose from disaster here. After a fire in 1951, from which only the hay dryer was saved, a new barn using many of the farming ideas tried and approved at Michigan State College was built. Typical, new installations are a lower-cost pole barn and a self-feeding pen which gives cattle free access to mow-cured, chopped hay, but which has movable racks to prevent cattle from trampling and dirtying hay. A stall milking parlor, electrically operated, has been installed, with a depressed walkway between stalls so that the operator may work standing up. The milk is piped directly from milking machines to coolers, with no intermediate handling. Miscellaneous electrical operations are barn radio, a grain-dryer and a wagon unloader. Work is in progress and on an electric conveyor to move silage to feed pens.



. . . Give Electricity Jobs by the Dozen

Federal grade price) for their eggs, most of which are disposed of on contract with a chain store.

Among the electrical applications: thermostats and solenoid valves to maintain steady, accurate heat on each poultry house floor, independent of any other floor. Two 22,000-egg incubators start new birds. Automatic feeders are electrically driven; there are electrically operated feed mixers and elevators. An electric candling and egg-grading machine is used. Eggs are washed by electrically-operated washers using electrically heated water. And a freezer is used to store frozen eggs (which have been churned electrically from cracked and thin or soft shelled eggs).

There is an electric hay drying system. Beef cattle are a side-product, primarily to obtain high humus-content manure to stabilize the too-light soil on which the farm is situated.

Peat Production Leads to Repeat Sales For Power

Rural industry is typified in a peat production plant. Average depth of moss is 5 feet. On the Anderson Brothers farm about half is bulldozed off leaving an equal depth on which to raise head-lettuce. Head-lettuce is the crop because it commands a good price, takes minimum care during growth, and least handling of all truck crops in preparation for market. Peat is a good growth medium for lettuce, when adequately fertilized, because of its ability to remain cool and moisture-retentive during warm weather. At the nearby plant of the Michigan Peat Co, electricity is used extensively in processing and packaging the moss. An electrically driven vibrator screen breaks up lumps and the 100-lb bags are closed with an electric sewing machine.

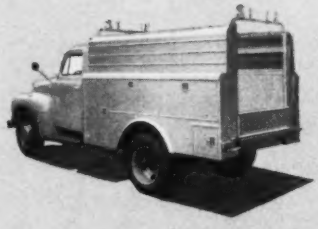
5 Ways to Speed Up Your Service Work

Series 44-90 can be installed on chassis having C.A. dimension of approximately 48″

Series 44-75 for chassis having approximately 40″ C.A. dimension.

Series 44-104 for single or dual rear wheel chassis having 60″ C.A. dimension.

Series 44-L-90 for chassis having approximately 48″ C.A. dimension.



Series 44-L-104 for 60″ C.A. chassis having single or dual rear wheels.

POWERS American

SERIES 44 and 44-L

SERVICE AND MAINTENANCE BODIES

These five bodies have an impressive record for saving time and money on service jobs. Compartments are equipped to keep tools and supplies safe and orderly — easy to inventory before leaving for the job — easy to find upon arrival. The bodies are adaptable to a wide variety of service operations, and each model can be transferred to a new chassis when the original truck wears out. If you're looking for new ways to get more productive man hours, you'll want full information on Series 44 and 44-L bodies. Why not send for complete details . . . now?

Clip this coupon and attach to your letterhead!

McCABE-POWERS AUTO BODY CO., 5900 N. Broadway, St. Louis 15, Mo.
Please send me complete information on the following:

- ☐ Series 44-75
- ☐ Series 44-90
- ☐ Series 44-104
- ☐ Series 44-L-90
- ☐ Series 44-L-104
- ☐ Line Construction Bodies
- ☐ Revolving Aerial Ladders
- ☐ Hydraulic Towers
- ☐ .....

Name ..... Title .....

Company .....

Address .....

City ..... Zone ..... State ..... ST

POWERS American DIVISION

PUBLIC UTILITY BODIES & EQUIPMENT

McCABE-POWERS AUTO BODY CO.

MAIN OFFICE AND PLANT
5900 N. Broadway • St. Louis 15, Mo.

WESTERN OFFICE
Latham Sq. Bldg. • Oakland 12, Calif.

Pay Scale at Project Criticized

Senator charges wages paid workers at Gavins Point dam are higher than those prevailing in northeastern Nebraska

Further criticism of the administration of the Davis-Bacon "prevailing wage" law covering federal construction came up on the floor of the U. S. Senate on Feb. 25.

Target of the attack by Sen Dwight Griswold, Nebraska Republican, was the establishment of wages by Labor Department for construction of the Gavins Point reservoir, which touches both Nebraska and South Dakota across the Missouri River.

Wages Higher . . . Griswold charged that rates set by the Secretary of Labor for the $70-million project were 15¢ to 40¢ an hour higher than any wages paid for skilled and unskilled labor in northeastern Nebraska.

Just a few days before Griswold spoke, a "lame duck" report by the Senate Labor Committee—worked up during the Democratic-controlled 82nd Congress—charged the Labor Department, the Army Corps of Engineers, and other federal agencies with lax enforcement of the law. Some contractors, said the report, are still getting government contracts though they violate the wage and other labor standards required on federal works.

Critics in the past have blamed partiality on the part of the Labor Department toward labor unions for this condition.

Bacon-Davis Law . . . Under the Davis-Bacon law, the Secretary of Labor sets wage rates for federal construction projects on the basis of those prevailing for labor on projects of a similar character in the same area.

During hearings held by the department at Gavins Point, there was no other similar project in the area. So rates were set on the basis of wages paid at the Fort Randall Dam project, 50 miles away in South Dakota. Fort Randall, which is already about 70% completed, and Gavins Point are part of a series of dams either under construction or in the planning stages by the Corps of Engineers in a comprehensive flood control power program on the Missouri River.

Senator Griswold doesn't accept the argument of the Labor Department that the Fort Randall project, costing close to $200 million, is so big as to establish the prevailing wage rates in the area. In the predominantly agricultural area around Gavins Point farmers will have to pay more for farm labor and state building highway construction costs will go up as a result, he said.

LABOR BRIEFS

Columbus & Southern Ohio Electric Co strike was averted recently when International Brotherhood of Electrical Workers, AFL, Local 1446, members voted 238-to-147 to accept company's 10% wage increase offer.

Puget Sound Power & Light Co and International Brotherhood of Electrical Workers, AFL, have agreed to wage increases averaging 6%.

General Electric Co and International Union of Electrical Workers, CIO, began labor negotiations recently. IUE is asking for 21¢ an hour wage increase for 71,000 employees in 60 plants in the U. S.

Plant guards, members of Amalgamated Plant Guards' Union, independent, at Allis-Chalmers Manufacturing Co in Milwaukee, voted 71-to-15 in favor of a modified union shop.

The average U. S. family with $300 a month income spends approximately $1,000 a year for food, of which the farmer will probably get about $470 this year, while the remaining $530 will go for processing and distribution, according to an estimate by the family economics bureau of Northwestern National—Life Insurance Co.

Penelec's Southern Division Cited

Pennsylvania Electric Co's Pres O. Titus, center, congratulates W. J. Utts, left, manager of the company's southern division, after presenting him with the newly inaugurated President's Award. The division, employing an average of 1,147, had no lost-time accidents last year. E. T. Marshall, system safety engineer, looks on.

The division also earned an Edison Electric Institute Safety Merit Award certificate in recognition for completion of 2,754,870 man-hours, from Nov. 27, 1951 to Jan. 21, 1953 without a disabling injury accident.

Amortization Fight Shaping Up

Proponents of 3 methods of handling accelerated tax write-offs getting ready to tangle at FPC hearing. Rules adopted to affect electric companies holding $1.2 billion certificates

A three-way controversy is shaping up on the accelerated amortization hearing to be held before the Federal Power Commission, March 18, at Washington.

FPC is to decide what rules, if any, it should adopt in the treatment of fast tax amortization for accounting and rate-making purposes (EW, Feb. 2, p 42). Under the Federal Power and Natural Gas Acts, the regulatory agency exercises authority over the accounting procedures and rates of both electric utilities and natural gas pipelines operating in interstate commerce.

Defense Production Act of 1950 . . . The accelerated tax write-off program was authorized in the Defense Production Act of 1950 to step up expansion of defense production facilities. Certification of a project, such as a generating plant or transmission line, permits companies to amortize an authorized amount of the cost by means of rapid-tax-write-off over a five-year period, rather than the normal life of the project.

The purpose of this legislation was to increase earnings so that the companies would have additional money readily available. This would enable them to proceed with the expansion of their facilities with the speed the government desired.

Electric companies under FPC jurisdiction have received certificates relating to a gross investment of $2.5 billion of which $1.2 billion has actually been certified for rapid amortization.

By last week more than 25 interested parties had filed comments and said they would appear at the FPC hearing. Comments have come from a number of electric and gas companies, state regulatory commissions, accounting organizations, public power groups, and at least one organization of municipal officials.

Three Patterns . . . Suggestions for treatment of the rapid tax amortization fall generally into three patterns:

- Utilities, as well as a number of state commissions, believe that for rate-making purposes, the fast tax write-off should not be taken into account. For accounting purposes, they propose the creation of a special reserve account for savings accrued during the five years of the fast amortization period. The higher subsequent income tax demands would be partially charged to this special account.
- Second suggestion is that both rates and accounting be geared strictly to the actual tax paid. Thus the rate payers would get the benefit of any savings accruing from the fast tax amortization.
- A third group representing public power interests believes that any savings accruing from the accelerated amortization procedure should be counted as a federal investment. While this group does not specifically ask FPC to direct the companies to operate on a cost basis as regards these savings, it does suggest that alternative. In any event, this group holds, that the savings from accelerated amortization should be deducted from the rate base as a means of reducing utility rates.

Kentucky PSC Order . . . Most generally accepted view of the treatment of fast tax amortization by regulatory bodies wes expressed by the Kentucky Public Service Commission in an order issued last year:

"The primary effect of the accelerated depreciation or amortization is to reduce the amount of income taxes payable during the five-year period and to increase the amount of such taxes payable thereafter during the remaining service life of the property with respect to which accelerated depreciation or amortization is taken.

"In other words, the actual effect of the accelerated depreciation or amortization of emergency facilities is simply to defer the payment of income taxes, since the aggregate income tax payments during the service life of the property are the same if the tax rate remains constant whether the deduction is taken in 60 months or over a longer period."

Accordingly the Kentucky commission order allowed utilities affected to set up an account under the heading "Surplus Arising from the Deferment of Income Taxes" with concurrent credit to an account called "Portion of Current Income Taxes Deferred in Prior Years."

This general position has been backed by a number of other state commissions and most of the public utilities which have submitted comments. Four companies, Alabama Power, Georgia Power, Gulf Power, and Mississippi Power,—all subsidiaries of the Southern Co—indicated they would support this procedure, which would permit the companies to use the cash for capital expenditures until required for future tax payments.

Tax Savings to Consumers . . . The Committee on Electric, Gas, and Telephone Rates of the National Institute of Municipal Officers wants any savings from accelerated amortization to be passed quickly and directly to the consumer. Says the organization in a comment filed with FPC, "The ratepayers want that money now."

The institute committee points to the possibility of a future federal income tax reduction and argues that present ratepayers have just as much claim to present utility savings as future consumers may have to savings from the actual tax reduction.

Unless the actual benefits are passed directly to the consumer, argues the institute committee, the benefit accrues only to the stockholder and security holder of the public utility.

Northwest Public Power Association says any benefit conferred by accelerated amortization "should not become a windfall to the common stockholder." NPPA suggests FPC:

1. Take all steps to recover in full the capital funds which the federal government has and will have invested in the projects for which accelerated amortization has been extended.

2. Issue rules for accounting of compound interest savings in a manner which will credit this interest to the consumer, as for example by reducing the interest cost during construction, "or other reduction of the rate base."

League Formed . . .

. . . in Wentachee, Wash., to combat the proposed merger of Puget P&L with WWP

The Electric Power Consumers' League has been organized by public-power supporters at Wentachee, Wash., to oppose the proposed merger of the Puget Sound Power & Light Co with the Washington Water Power Co.

Kirby Billingsley, Chelan County PUD comissioner, told the group that "tremendous pressure" is being put on Frank McLaughlin, Puget president, to merge with WWP rather than sell to a group of five PUD's.

If vigorous action is not taken, WWP will swallow the entire system, Billingsley charged.

WWP has acquired influence over some 600,000 shares of Puget stock and is using this to urge McLaughlin to withdraw from the proposed $94-million sale to Chelan and four other PUD's, said Billingsley.

Puget and WWP Representatives Meet . . . In the meantime, there was a meeting in New York City on March 4 between representatives of Puget and WWP to formulate terms of a possible merger, as WWP's previous merger offer of either a share-for-share exchange of stock or $27 a share in cash for Puget had expired on Feb. 27.

Earlier WWP had made an offer of a share of WWP common stock and $27 a share cash payment for each two shares of Puget common which was turned down by the Puget management. The Puget president made the following statement in the 1952 annual report turning this offer down:

"If WWP had been able to come up with a cash-on-the-barrel head type of proposal, it would have eliminated the risks to Puget stockholders inherent in a merger, and would have presented an entirely different sort of situation."

Puget's Earnings Higher . . . McLaughlin pointed out that Puget is expected to earn about $1.80 a share and pay not less than $1.20 a share in dividends for 1953.

On the sale of Puget he declared that "The time element is secondary to an assurance that the final outcome is the most advantageous one from the standpoint of stockholders and other interested parties."

Today in Utility Finance

YIELDS (%)

Quality	Bonds			Preferred Stocks			Common Stocks		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
DATE									
1953									
Mar. 5	**3.11**	**3.16**	**3.26**	**4.16**	**4.32**	**4.59**	**4.98**	**5.31**	**5.63**
Feb. 26	3.12	3.17	3.26	4.14	4.28	4.58	4.99	5.33	5.67
END OF QTR.									
4th 1952	2.99	3.03	3.14	4.06	4.22	4.59	4.98	5.33	5.62
3rd 1952	2.99	3.03	3.16	4.10	4.26	4.61	5.18	5.59	5.96
2nd	2.95	3.00	3.09	4.05	4.31	4.60	5.38	5.85	6.42
1st 1952	2.95	2.99	3.13	4.11	4.29	4.66	5.35	6.03	6.47

Data: Reis & Chandler, Inc.

EARNINGS

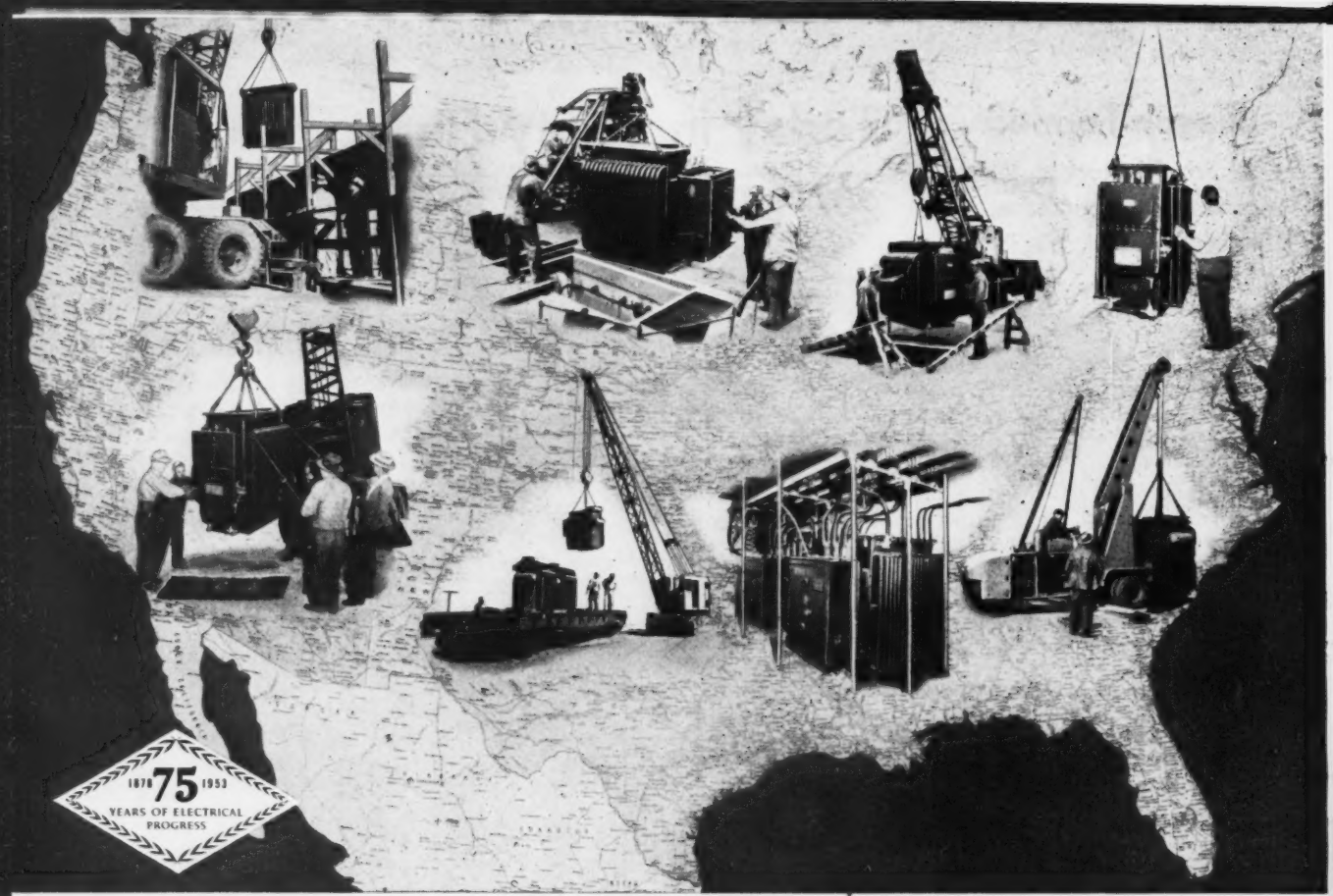
Company	Period Months	Ended	Net Income 1953	Net Income 1952	Earnings Per Common Share 1953	Earnings Per Common Share 1952
Arizona Public Service	12	Jan.	$3,353,704	$2,290,194	$....	$....
California-Pacific Utilities	12	Jan.	544,100	494,492	2.04	1.85
Dallas Power & Light	12	Jan.	4,403,746	3,423,286	....	....
Middle South Utilities, consolidated	12	Jan.	13,706,946	10,982,671	1.91(a)	1.84(a)
Portland General Electric	12	Jan.	3,693,262	3,454,030	2.53(b)	2.76(b)
Texas Electric Service	12	Jan.	8,311,603	6,745,682	....	....
Virginia Electric & Power	12	Jan.	11,837,658	10,462,215	1.76(c)	1.67(c)
			1952	**1951**	**1952**	**1951**
Boston Edison	12	Dec.	8,146,871	7,791,597	$3.30	$3.16
Columbus & Southern Ohio Electric	12	Dec.	4,700,772	3,570,811	2.07(e)	1.84(e)
Connecticut Power	12	Dec.	1,676,912	1,666,455	2.36	2.34
Dayton Power & Light	12	Dec.	8,275,442	7,266,597	2.85(f)	2.74(f)
General Public Utilities, domestic subsidiaries only	12	Dec.	14,964,779	12,221,283	1.81(g)	1.56(g)
Illinois Power	12	Dec.	8,712,000	8,034,000	2.89	2.77
Kansas Power & Light	12	Dec.	4,428,576	3,918,538	1.48	1.27
Lake Superior District Power	12	Dec.	940,127	838,838	2.93	2.64
Louisville Gas & Electric	12	Dec.	5,380,176	5,164,205	2.31	3.14
Public Service Co of Indiana	12	Dec.	10,009,091	8,322,570	2.39	2.11
Quebec Power	12	Dec.	710,008	647,714	1.28	1.17

Notes—Figures shown for the last eleven companies have been audited.
(a) Excluding tax reduction due to amortization of emergency facilities; (b) Based on 1,458,333 shares in 1953 and 1,250,000 shares in 1952; (c) Based on shares outstanding at end of period; (e) Based on 2,001,360 shares in 1952 and 1,701,360 shares in 1951; (f) Based on shares outstanding at end of respective years; (g) Based on average number of shares outstanding during each year.

FINANCING

Company and Description	Amount of Offering (000)	Offering Price	Yield to Public
WEEK OF MARCH 5-11			
Bonds			
Fall River Electric Light—1st mtg 3¾% due 1983	$6,800	$102.27	3.625%
Narragansett Electric—1st mtg 3½% due 1983	10,000	101.87	3.40
Central Maine Power—1st general mtg 3¾% due 1983	10,000	101.00	3.57
Common Stock			
Arizona Public Service—378,000 sh	$6,237	$16.50	5.45%
Lake Superior District Power—29,761 sh (being offered common holders on 1-for-9 basis, record Feb. 25 to expire March 23)	923	31.00	6.45
Hilo, Hawaii, Electric Light—25,000 sh (being offered to stockholders on 1-for-3 basis, record March 10; unsubscribed to employees at rate of 10 shares for each full year of employment at $20 a share; balance to public at not less than $20 a share)	500	20.00	6.00
SCHEDULE FOR MARCH			**Bid Date**
Bonds			
Lake Superior District Power—1st mtg due 1983	$2,000	.....	March 17
Mississippi Power & Light—1st mtg due 1983	12,000	.....	March 17
Georgia Power—1st mtg due 1983	16,000	.....	March 24
Dallas Power & Light—1st mtg due 1983	9,000	.....	March 24
Brockton Edison—1st mtg due 1983	4,100	.....	March 25
Public Service of Oklahoma—1st mtg	6,000	.....	March 31
Preferred Stock			
Public Service of New Mexico—30,000 sh 4.85% $100 par	$3,000	.....	March 17**
Georgia Power—100,000 sh no par	.....	.....	March 24
Common Stock			
Public Service Electric & Gas—750,000 sh	.....	.....	March 18#
California Electric Power—163,249 sh	.....	.....	March 31
Southern Indiana Gas & Electric—114,167 sh (to be offered to common holders on 1-for-6 basis, record March 25 to expire April 10)	.....	.....	.....
UNSCHEDULED AND UNDER CONSIDERATION			
Bonds			
Wisconsin Public Service—1st mtg	$7,500*	.....	.....
Monongahela Power—1st mtg	10,000	.....	.....

Notes—* Estimated. ** To be offered by Allen & Co, underwriters. # Morgan Stanley & Co group will probably offer the stock.



Secondary networks key to easy expansion in city after city across the nation

G-E network units added by many utilities . . . often as only step in increasing system capacity

Even today's rapidly expanding urban loads cause little difficulty in cities where secondary network systems have been installed.

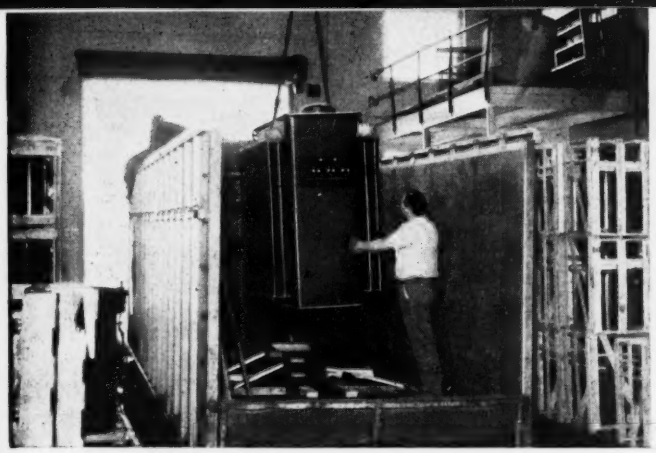
Unlike radial distribution systems, secondary networks permit electric utilities to handle increased loads—foreseen and unforeseen—without resorting to extensive engineering calculations, rearrangement or bolstering of circuits, or juggling of existing loads. And this, in addition to maintaining virtually uninterrupted service and uniformly firm voltage!

The installations pictured on the right clearly demonstrate the ease of meeting load growth once you have gone to a secondary network. In practically every case, all that was necessary to take care of increased loads was additional network units. Where required, utility crewmen constructed transformer vaults; installed new G-E network transformers; and tapped them in to reinforce existing secondary grids!

If you're struggling to accommodate new loads by perpetuating a radial system and your load density has risen to approximately 10,000 to 15,000 kva per square mile, it may be time for you to investigate the flexibility and economy of a secondary network.

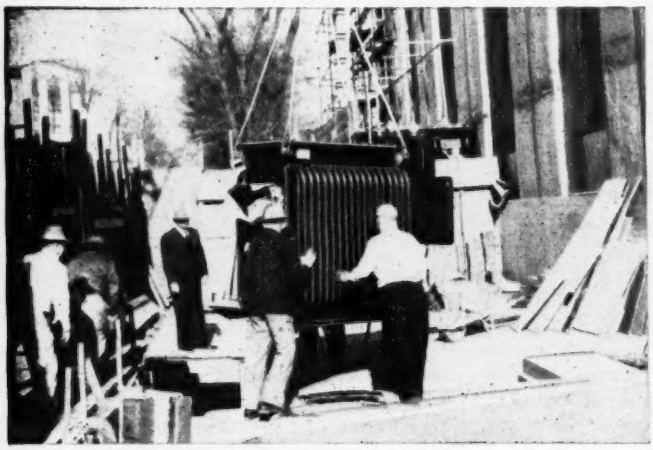
When you do, be sure to consider the extra advantages of G-E standardized network equipment. Quantity production methods reduce manufacturing and assembly time. You get faster delivery at lower prices. And refinement in design—made possible by quantity production—means lower installation and maintenance costs.

For help in solving your network problems and for complete information on G-E network transformers, see your local G-E representative. Or write for Bulletin GEA-5024. *General Electric Company, Schenectady 5, New York.*



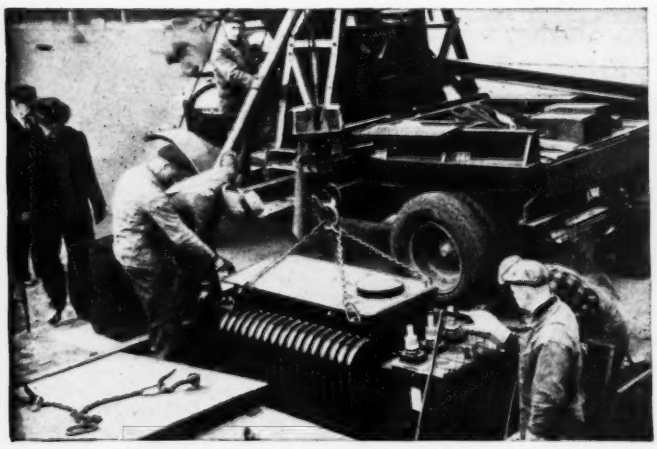
PROVIDENCE Narragansett Electric Company prepares to add another G-E network unit. An overhead crane eases unit into truck for transportation to vault site.

INDIANAPOLIS Crewmen of the Indianapolis Power & Light Company rig a new G-E network transformer to be transferred to sidewalk vault on North Pennsylvania Street.

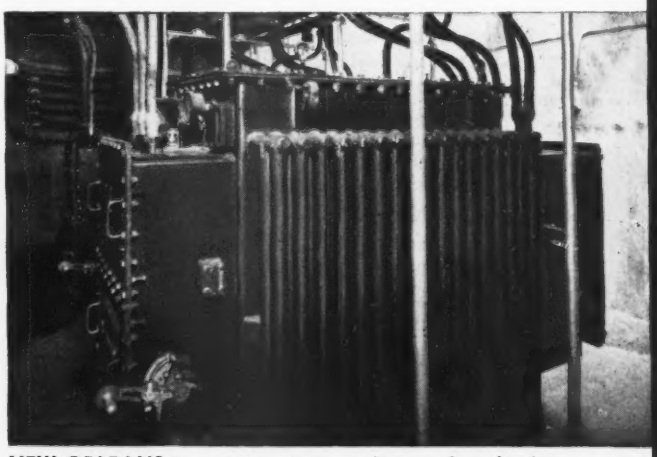


SACRAMENTO And still another General Electric network transformer being added. Workmen are guiding suspended unit towards vault opening.

SAN FRANCISCO adds capacity in heart of "down town" district. G-E standardized network unit enabled Pacific Gas & Electric to construct vault of minimum size at Pine St.



ST. LOUIS and the location is Clark Avenue and 15th Street. Union Electric's crew will soon have this standard G-E network unit in place and connected to secondary grid.



NEW ORLEANS Scene taken in an underground vault of the New Orleans Public Service system shows G-E network units connected up and ready to handle their share of load.

GENERAL ELECTRIC

402-119

New Type Reactor Developed

Union Carbide & Carbon reveals experimental homogeneous furnace produces 150 kw. Development hailed as 'milestone'

Union Carbide & Carbon Corp, New York, has announced that production of useful amounts of electric power by nuclear energy has been achieved from successful operation of a new type of reactor—the experimental homogeneous reactor—at Oak Ridge (Tenn.) National Laboratory. The firm operates the laboratory for the Atomic Energy Commission.

Dr J. A. Swartout, deputy research director of the Oak Ridge laboratory who directed the Homogeneous Reactor Project, declared that this demonstration of the feasibility of homogeneuous liquid-fuel reactor systems is an important milestone toward economical production of electricity by means of nuclear reactory. Dr Swartout, however, emphasized that many problems remain to be solved.

150-Kw Produced . . . Scientists on Feb. 24 brought a pilot model of the unique reactor system up to its full design power of 1,000 kw of heat output. The reactor steam then was switched to a turbine-generator and about 150 kw of electricity was produced. This is enough electricity to meet the estimated needs of 50 average five-room dwellings.

In the homogeneous reactor, a single homogeneous solution serves as fuel, moderator, and coolant. The heat generated by the nuclear reaction of the uranium fuel in the solution is removed by pumping the hot radioactive liquid through a heat exchanger or boiler, which produces steam to drive a turbine-generator.

First to Run T-G . . . Capable of producing both fissionable material and electric power, the homogeneous reactor at Oak Ridge is the first to operate at a temperature and power high enough for production of steam to run a standard industrial turbine-generator. However, this reactor was not designed to produce economical electric power.

Union Carbide scientists who witnessed the demonstration reported that, after an 11-month period of thorough testing, the Oak Ridge experimental homogeneous reactor went smoothly to full power.

For the first short period of top power-level operation, the reactor produced twice as much electricity as needed by its own building, and the excess electricity from nuclear energy was fed into the Oak Ridge laboratory electrical system.

Cost About $4.1 Million . . . The homogeneous reactor is housed in a sheet-steel, barn-type building situated in a small valley adjacent to the Oak Ridge laboratory. Including building and site facilities, the reactor and its auxiliaries cost about 1.1 million. Cost of research and development was approximately $3 million.

Construction of the Oak Ridge reactor was started in March, 1951, following two years of development and design by the scientist at Oak Ridge National Laboratory. The reactor "went critical," or first achieved a nuclear chain reaction April 15, 1952. Following the low-power operation, the experimental work will continue at higher power to acquire information regarding the feasibility of this type for full-scale reactors.

Wakefield Brass Slashes Plastic Ceiling Price 30%

A 30% reduction in the price of its all-luminous plastic, suspended ceiling has been made by F. W. Wakefield Brass Co, Vermilion, Ohio.

A. F. Wakefield, president and general manager, attributed the reduction to several improvements in manufacturing methods which in combination have made important economies possible. One of these is from a new method of fabricating corrugated Plexiglas sheets through which lighting is diffused. Means of fabrication in the larger sizes required have been under development since the all-luminous ceiling was introduced in 1950.

The "three-way" ceiling furnishes broad-area illumination of low-brightness quality in any intensity desired and facilities for draftless air distribution and noise reduction in new or old buildings. The product was developed in the 1940's with staff members of Massachusetts Institute of Technology.

MANUFACTURING BRIEFS

Construction of a $1.2-million electrical porcelain plant at Kenova, W. Va., has been started by Line Material Co, Milwaukee, a division of McGraw Electric Co. The new plant, scheduled to be finished by the end of the year, will replace a building destroyed by fire last October.

A. O. Smith Corp, Milwaukee, has opened a new branch of its product service division at Oakland, Calif. This new 12,000-sq ft building will provide a West Coast service location for users of the firm's products and is designed to facilitate handling of replacement parts and training operations.

New general sales office of Oliver Iron & Steel Corp is located in the Oliver Bldg., Pittsburgh 22, Pa.

Independent Pneumatic Tool Co's new name beginning March 17 will be Thor Power Tool Co. Since the trade name "Thor" has been used as identification on all of the firm's power tools since 1893, Pres Neil C. Hurley, Jr, said the new name utilitzing the trade mark will eliminate confusion and facilitate easier recognition of the company's products.

Arrow-Hart & Hegeman Electric Co Hartford, Conn., has added more than 36,000 sq ft of floor space to its branch facilities at Danielson, Conn. The company has purchased a three-story concrete structure to be used for storage purposes.

SALES ASSIGNMENTS

COMPANY STAFFS

Porcelain Products, Inc, Parkersburg, W. Va., has named Charles Bowling as its sales representative for Hi-Voltage insulators in the middle area of Tennessee.

Square D Co, Detroit, has appointed L. J. Murrans resident manager of a newly opened branch office at 610 Farmington Ave., Hartford, Conn. K. S. Duncan has been named field engineer for Connecticut and western Massachusetts.

Save as much as 14% of initial cost with G-E 7-strand station control cable

General Electric recommends the use of No. 10 Awg 7-strand and No. 12 Awg 7-strand conductors for station control cable . . . based on coordinated studies by G-E wire and cable, instrument, meter, and relay engineers. This cable can save as much as 14% in your initial control cable cost when you compare the No. 10 Awg 7-strand size to cable composed of 19 strands of No. 22 Awg wire.

G-E 7-strand control cable effectively meets today's requirements for control cable flexibility. The 7-strand construction is easier to use with pressure-type terminals than are the older 19-strand types. There is no sacrifice in reliability.

In addition to the important feature of lower cost, the 7-strand control cable promotes standardization by conforming to standard Awg wire sizes—an important consideration when speedy delivery is a major factor.

For more information about 7-strand station control cable see your G-E wire and cable specialist. Or, write to Section W73-327, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

You can put your confidence in—

1878 75 1953 YEARS OF ELECTRICAL PROGRESS

GENERAL ELECTRIC

Electric Service Manufacturing Co, Philadelphia, has named Warren Erbe district manager of its St. Louis office. Erbe, formerly sales representative for that office, has been with Electric Service for ten years.

Graybar Electric Co, New York, has made the following appointments: J. W. Riddell, manager of the Reading (Pa.) branch; H. E. Orr, operating manager, Amarillo (Tex.) branch; A. W. Wheeler, manager, New Orleans (La.) branch; and B. F. Benning, manager, Shreveport (La.) branch succeeding Wheeler.

Westinghouse Electric Corp's Southwestern district has named E. S. Rehagen branch manager of its newly created St. Louis branch office. Rehagen, a veteran of 25 years with Westinghouse, has appointed the following sales supervisors to the branch office staff: Fred N. Wightman, Burl J. Snow, Edward B. Scruggs, and Ben H. Marshall.

J. H. Holan Corp, Cleveland, has appointed Col Henry E. Wooldridge as direct factory representative with headquarters at 212 South El Comino, San Mateo, Calif. Wooldridge, formerly vice president of United Transportation Equipment Co, will supervise Holan sales in California, Nevada, Arizona, Utah, and the Hawaiian Islands.

Allis-Chalmers Manufacturing Co's General Machinery Division has advanced J. T. Graham to the post of manager in its Jacksonville (Fla.) office, which is now a branch office of the Tampa district. Graham, who started with A-C in 1940, has served as a resident representative at Jacksonville for the division since 1948. Leo E. Engleson and Robert W. Lundquist are newly named sales representatives to the division's Boston and Newark (N. J.) district offices, respectively.

General Electric Co has named T. M. Kinzy manager of its new Joplin (Mo.) industrial apparatus sales office, which will serve southwest Missouri and southeast Kansas areas. O. I. Markham leaves the post of resident sales engineer in Pittsburgh, Kan., to becomes sales engineer in the new Joplin office.

Corning Glass Works, Corning, New York, has named Harold E. Gumbart to the new position of western district sales representative. Gumbart, formerly senior sales engineer for the firm's New Products Division, will make his headquarters in Los Angeles, Calif.

MEETINGS CALENDAR

National Association of Corrosion Engineers
1953 Conference-Exhibition, Sherman Hotel, Chicago, March 16-20.

North Central Electric Association
Accounting Conference, Dyckman Hotel, Minneapolis, March 23-24; Accident Prevention Committee, Dyckman Hotel, Minneapolis, April 21; Distribution-Equipment Engineering Meeting, Dyckman Hotel, Minneapolis, April 22; South Dakota All-Electrical Industry Meeting, Ward Hotel, Aberdeen, S. D., April 24-25.

A&M College of Texas
Conference for Protective Relay Engineers, Dept. of Electrical Engineering, College Station, Tex., March 23-25.

Illuminating Engineering Society
Canadian Regional Conference, Chateau Laurier, Ottawa, Ont., March 23-25; Southwestern Regional Meeting, Hotel Baker, Dallas, Tex., April 12-14; Pacific Northwest Regional Conference, Multnomah Hotel, Portland, Ore., April 23-24; East Central Regional Conference, Lord Baltimore Hotel, Baltimore, Md., May 14-15; Southern Regional Conference, Sedgefield Inn, Greensboro, N. C., May 18-19; Great Lakes Regional Conference, Syracuse Hotel, Syracuse, N. Y., May 25-26; National Technical Conference, Hotel Commodore, New York, Sept. 14-18.

Southeastern Electric Exchange
20th Annual Conference, Boca Raton Hotel, Boca Raton, Fla., March 23-25; Engineering-Operation Section, Edgewater Gulf Hotel, Edgewater Park, Miss., April 16-17; Industrial Power Sales Conference, Fort Sumter Hotel, Charleston, S. C., May 21-22.

Institute of Radio Engineers
National Convention-Exhibit, Waldorf-Astoria Hotel and Grand Central Palace, New York, March 23-26.

American Power Conference
Annual Meeting, Sherman Hotel, Chicago, March 25-27.

***Edison Electric Institute**
19th Annual Sales Conference, Edgewater Beach Hotel, Chicago, March 30-April 2; Accident Prevention Committee, Edgewater Beach Hotel, Chicago, May 4-5; Transmission-Distribution Committee, Edgewater Beach Hotel, Chicago, May 5-6; Electrical Equipment Committee, Sir Walter Hotel, Raleigh, N. C., May 11-12; Meter-Service Committee, Wentworth-by-the-Sea, Portsmouth, N. H., May 25-27; 21st Annual Convention, Atlantic City, N. J., June 1-4; Hydraulic Power Committee, Portland, Ore., June 15-16.

Southeastern Metermen's Association
28th Annual Short Course Conference, University of Florida, Gainesville, Fla., April 6-10.

Pacific Coast Electrical Association
Administrative Services Section Conference, Phoenix, Ariz., April 8-9; Annual Convention, Hoberg's, Lake County, Calif., May 13-15.

Northwest Electric Light & Power Association
Engineering-Operation Section, Multnomah Hotel, Portland, Ore., April 8-10; Business Development Section, Davenport Hotel, Spokane, Wash., May 4-6.

Northwest Public Power Association
Engineering-Operation Section, Osbourn Hotel, Eugene, Ore., April 16-17; Annual Convention, Ridpath Hotel, Spokane, Wash., May 6-8; Accounting Section, Monticello Hotel, Longview, Wash., Sept. 17-18.

Maryland Utilities Association
Annual Business Conference, Lord Baltimore Hotel, Baltimore, April 17; Fall Conference, Cavalier Hotel, Virginia Beach, Va., Sept. 18-19.

Electric-Gas Utility Accountants
National Conference, Sherman Hotel, Chicago, April 20-22.

American Institute of Electrical Engineers
Southern District Meeting, Hotel Seelbach, Louisville, Ky., April 22-24; Northeastern District Meeting, Sheraton Plaza Hotel, Boston, April 29-May 1; Summer General Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 15-19; Pacific General Meeting, Hotel Vancouver, Vancouver, B. C., Sept. 1-4; Middle-Eastern District Meeting, Daniel Boone Hotel, Charleston, W. Va., Sept. 29-Oct. 1; Fall General Meeting, Muehlebach Hotel, Kansas City, Mo., Nov. 2-6.

***Pennsylvania Electric Association**
Spring Meeting, Meter Committee, Hotel Alexander, Hagerstown, Md., April 23-24; Spring Meeting, Communications Committee, Hotel Roosevelt, Pittsburgh, April 30-May 1; Spring Meeting, Relay Committee, Valley Forge Hotel, Norristown, Pa., May 7-8.

Rocky Mountain Electrical League
Annual Spring Conference, Shirley Savoy Hotel, Denver, Colo., April 26-28.

American Society of Mechanical Engineers
Spring Meeting, Deshler-Wallick Hotel, Columbus, Ohio, April 28-30; Semi-Annual Meeting, Statler Hotel, Los Angeles, June 28-July 2; Fall Meeting, Sheraton Hotel, Rochester, N. Y., Oct. 5-7; Annual Meeting, Statler Hotel, New York, Nov. 29-Dec. 4.

***Electric Lines Club of New England**
Spring Meeting, University Club, Boston, Mass., May 6.

Public Utilities Advertising Association
National Convention, Chase Hotel, St. Louis, May 7-8.

Electrical Manufacturers' Representatives Association of Michigan, Inc
1953 Electrical Exhibition, State Fair Grounds, Exhibition Bldg., Detroit, May 19-22.

National Association of Purchasing Agents
Annual Meeting, Statler Hotel, Los Angeles, May 24-27.

National Association of Electrical Distributors
45th Annual Convention, Conrad Hilton Hotel, Chicago, May 24-29; Spring Meeting, Pacific Zone, Huntington Hotel, Pasadena, Calif., June 8-10.

California Municipal Utilities Association
Annual Conference, Clift Hotel, San Francisco, June 9-12.

American Society for Testing Materials
Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 29-July 3.

International Association of Electrical Leagues
18th Conference, Fairmount Hotel, San Francisco, Aug. 5-8.

***National Electrical Industries Show**
Sponsored by Eastern Electrical Wholesalers' Association, 69th Regiment Armory, New York, Sept. 29-Oct. 2.

National Electrical Manufacturers Association
Annual Meeting, Haddon Hall, Atlantic City, N. J., Nov. 9-12.

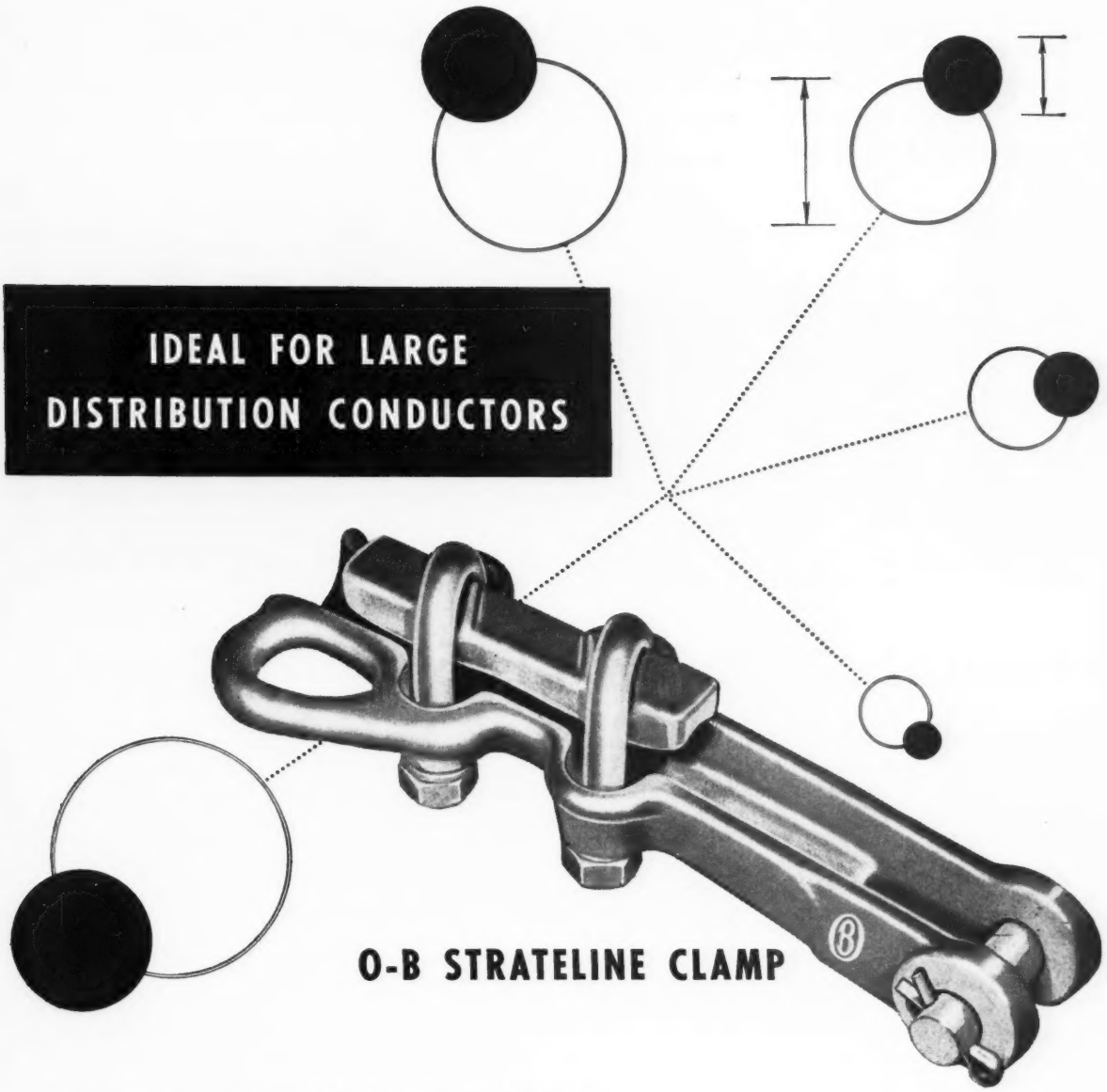
***Addition this week.**

MANUFACTURERS' EARNINGS

Company	Period Months	Ended	Net Income 1952	Net Income 1951	Earnings Per Common Share 1952	Earnings Per Common Share 1951
Baldwin-Lima-Hamilton	12	Dec.	$7,222,925	$4,585,196	$1.51	$ .96
Buffalo Forge	12	Nov.	1,929,769	2,026,394	5.94	6.24
Cornell-Dubilier Electric	3	Dec.	404,500	355,000	.83	.72
Fairbanks, Morse (a)	12	Dec.	4,602,929	4,905,556	3.84	4.09
Foster Wheeler (a)	12	Dec.	776,264	1,391,104	1.36	2.44(b)
Minneapolis-Honeywell Regulator (c)	12	Dec.	9,081,003	9,277,510	3.00	3.16
Ohio Brass	12	Dec.	2,290,590	2,382,288	6.60	6.85
Owens-Corning Fiberglas (a)	12	Dec.	5,206,723	6,064,750	1.65	2.25
Philco (a)	12	Dec.	11,491,207(d)	12,168,046(d)	3.15	3.35
Scovill Manufacturing	12	Dec.	2,620,068(e)	5,566,825	1.73	4.13
Wagner Electric	12	Dec.	3,871,272	3,456,824	7.46(f)	6.79(f)

Notes—(a) These figures have been audited; (b) Based on number of shares now outstanding; (c) Preliminary; (d) After a $98,000 tax credit in 1952 and $600,250 in 1951; (e) After restoration to earnings of unusable reserves in amount of $796,521; (f) On shares outstanding at close of respective periods.

IDEAL FOR LARGE DISTRIBUTION CONDUCTORS



O-B STRATELINE CLAMP

Here's an inexpensive and highly effective deadend clamp for aluminum primary distribution conductors, especially in the larger diameters. Only five stock sizes of the O-B Strateline clamp will accommodate cable sizes from 0.15 to 1.55 inches--offering a still further economy in stockroom inventory. Holding strength and safety factors are generous for distribution service. Size and shape adapt the clamp ideally to restricted phase clearances, and facilitate the application of protective shields for hot line work. The entire Strateline group is duplicated in malleable iron, aluminum, or bronze to offer a free choice of cable-matching combinations.

Consisting of a re-design of a long-used O-B item, the modernized Strateline clamp offers the added advantage of long, successful service experience.

For extended range of cable diameters, ideal adaptation to distribution requirements, full choice of body metal, and attractive low cost, specify O-B Strateline clamps for your primary line construction.

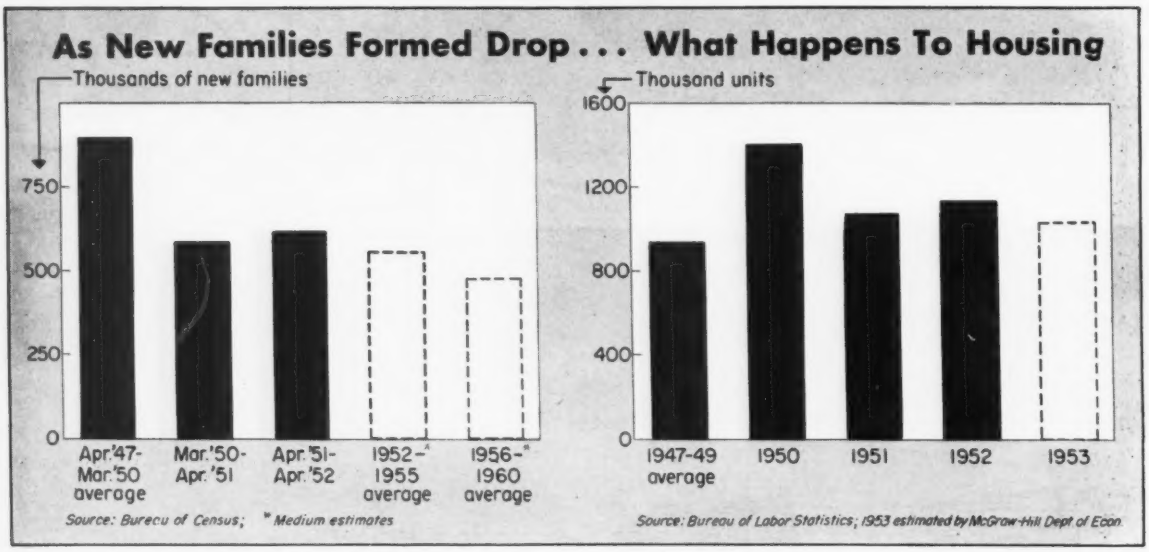
Ohio Brass

MANSFIELD OHIO, U.S.A.

IN CANADA: CANADIAN OHIO BRASS CO., LTD., NIAGARA FALLS, ONT.

4387-H

ELECTRICAL BUSINESS OUTLOOK



Household Growth Is Slowing Down

Household formation—source of most new demand for housing—is declining and due to decline further. Future sales of electricity to residential customers will depend on how well the building industry can develop new markets for homes—and what kind of homes they can sell. Economists have long known that household formation would decline. Now the Bureau of the Census has produced some statistics that help in estimating how serious the decline will be.

Gain in Households Slowing . . . The Census Bureau made three projections—high, medium, and low—of the future course of household formation. The number of households increased by 8.5 million between 1940 and 1950. The gain between 1950 and 1960 would be about the same under the Bureau's most favorable assumptions; it ranges down to 6.5 and 4.6 million in medium and low estimates.

Housing demand based on new household formation will obviously suffer seriously if the "most probable" projection of 6.5 million net new households proves accurate (See chart). But even the highest estimate promises trouble; a large part of the increase expected for 1950-1960 has already occurred, and the trend is downhill from 1953 on.

Fewer Marriages the Cause . . . Chief reason for the coming decline is an expected drop in marriages. By 1960, there will be 1-5% fewer adults in the common marrying ages, between 20 and 34 years, than in 1950—even though the total population may have increased by as much as 19-20%. This is the delayed effect of the drop in birth rates back in the '30's.

As a result, the number of married couples might increase as little as 2.4 million in ten years, according to the Census figures. The maximum estimate is 6.3 million. By contrast: The number of married couples went up 7.4 million between 1940 and 1950.

Estimates Could Be Wrong . . . There's no guarantee attached to these projections. But they do show some basic problems facing the industries that build, equip, or supply homes—including the electric utilities.

Here are some of the implications for the power companies:

1. The growth curve for total residential customers will level off for a time. The number is likely to increase more slowly through the 1950's, then pick up in the '60's when the children born in the '40's reach marrying age.

2. Residential energy sales in the next few years will depend heavily on changes in the quality rather than the number of units. The emphasis is likely to be on getting more appliances in each house.

3. Growth in residential electricity sales depends heavily on how builders react to the change in the housing market. They will have to develop some kind of replacement market for older homes if they are to keep homebuilding at high levels. If they do, power sales will benefit because new houses will be more highly electrified than old ones.

4. The utilities have another interest in what homebuilders succeed in doing to maintain homebuilding activity. Private housing has made a major contribution to postwar prosperity, adding more than $11 billion to the stream of economic activity in each of the past three years. Any severe drop in housing activity would be bound to affect the general level of business activity.

SAVE splice #1

– to direct burial runs

SAVE splice #2

– to overhead runs

SAVE splice #3

– to duct runs

one length of **DURASHEATH** can do the whole job

LIGHTER. May be used in self-supporting aerial assemblies.

TOUGHER. Special neoprene jacket resists abrasion, mechanical injury, moisture, corrosion, sunlight, organic decay. No sheath electrolysis.

EASIER TO HANDLE. Light and flexible.

LESS COSTLY TO STOCK. One cable – versatile Durasheath—meets all electrical distribution needs.

*Trade Mark

Save splices and you save money! No more do you have to use one type of cable for underground distribution . . . another for overhead . . . and a third for conduits. You can run durable Durasheath* *in one continuous length for all these locations.*

Durasheath is normally stocked for applications up to 5,000 volts, and is available on order for higher voltages, for traffic control, airport† power and lighting, mines, industrial plants, railroads, street lighting and many other uses. See your Anaconda Representative. Ask for quotations. Anaconda Wire & Cable Company, 25 Broadway, New York 4, New York. 52370A

†When ordered to CAA Specification L-824 .

the right cable for the job ANACONDA® wire and cable

Thermalite
OVERLOAD INDICATOR

. . . gives you today's biggest value in overload protection

Spots overloads quickly . . . But it won't interrupt service

Here's real ease in overload detection. Check the brilliant light of the *Thermalite* overload indicator right from your service truck. It's visible from hundreds of feet away to keep you posted on load conditions in hard-to-get-at locations.

The *Thermalite* overload indicator shows you when your transformer is overloaded, but it won't interrupt service. That means you can schedule transformer replacements or load rearrangements during daylight hours . . . and do away with costly emergency measures.

The *Thermalite* overload indicator will save you hundreds of hours of expensive surveys. It eliminates the need for keeping countless records, too. It will pay for itself quickly in transformer utilization and longer transformer life expectancy. A-3843

Thermalite is an Allis-Chalmers trademark.

ALLIS-CHALMERS

The *Thermalite* indicator is available on distribution transformers 100 kva and smaller, 15 kv and below.